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RLH Industries, Inc.

2011 PRODUCT GUIDE

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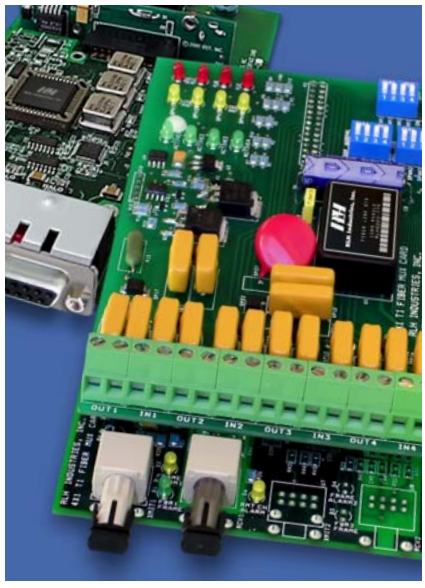
RLH Industries, Inc.

2011 PRODUCT GUIDE



At RLH we design, engineer, and manufacture the world-class fiber optic links, and fiber optic equipment, cable and supplies for the telecommunications industry.

Company Overview

Since 1988, RLH Industries Inc. has been a leader in fiber optic isolation technology. Based in the heart of Southern California, we have been engineering fiber optic products designed to meet the unique needs of our customers.

From high voltage isolation to critical communications applications, our products are manufactured in the USA to exceptionally high quality requirements, meeting or exceeding industry standards. Our confidence in the quality of RLH products is demonstrated by the only Unconditional Lifetime Warranty in the industry.

Utilities, service providers, and contractors throughout North America utilize RLH products for their communication needs.

RLH has a strong business foundation built on product quality and customer service with 24x7 service personnel ready to provide support when you need it.

INDUSTRY SOLUTIONS:

- Telecommunications
- High Voltage Isolation
- Critical Communications Systems
- Automatic Meter Reading (AMR/ AMI)
- SCADA/Data Systems
- Utilities, Power Transmission and Generation Facilities
- Wide Area Networks (WAN)
- Wireless/PCS
- Public Safety
- Educational Institutions
- Lightning Protection
- Local Area Networks

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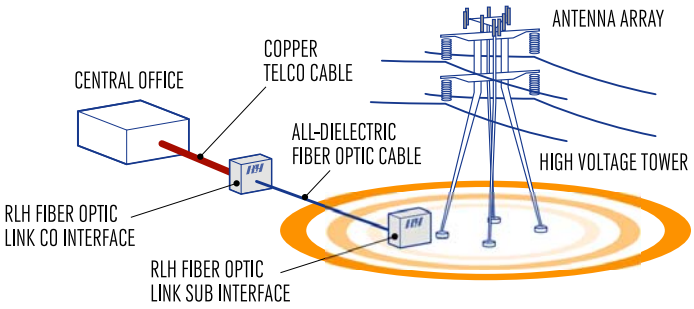
FIBER OPTIC LINK APPLICATIONS

Common Fiber Optic Link Applications Include:

- Applications from 2 Wire Analog Phone to High Speed Digital Circuit
- Any Location Where Critical (Must not Fail) Communications are the Priority
- Locations Served by Copper Telco Facilities where a GPR of 1000 Volts or more are present
- Wireless Facilities (PCS Equipment) Located on or Around High Voltage Utility Transmission Towers
- Wireless Facilities Located on Mono Poles to Protect Against Lightning
- Any Telco Facilities Located in High Voltage Environments
- Wireless Metering Services with Entering Data Lines
- Solar Generating Facilities with Entering Data/Voice Lines
- Point-to-Point (building to building) Fiber Communications Application

High Voltage Isolation

A high voltage environment is an area that is susceptible to a Ground Potential Rise (GPR) event. In some cases a voltage potential between the ground grid and remote earth can exceed 100kV. Common locations with GPR occurrences are power generating facilities, power substations, and towers for high voltage transmission lines. In all cases where copper telecommunication lines (remote grounds) are allowed into high voltage environments catastrophic failures can occur due to GPR, endangering facility personnel and equipment.



The Fiber Optic Link isolates telecommunication lines by replacing the copper telephone cable with an all-dielectric fiber optic cable inside the high voltage area. The Fiber Optic Link can completely eliminate the presence of the telephone line remote ground in order to insure the safety of personnel and greatly improve equipment reliability.

Common High Voltage Isolation Applications Include:

- Power generating plants
- Power substations
- Power switchyards
- Cell sites on power towers
- Co-generation sites

Fiber Optic Links meet industry standards:

- IEEE 1590-2003
- Motorola Standard 59
- IEEE 487-2000 (Annex F)

Turn-Key Projects

At RLH we not only manufacture and supply world class fiber optic products, but we also provide expert installation, engineering and consulting for all of our Fiber Optic Link products.

Contact us today and we'll be happy to review your needs, provide a plan of action, and create a service quote or engineering program to get your project up and running.

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FIBER OPTIC LINK CARDS

Fiber Optic Link

RLH FIber Optic Link cards are industrial, hardened analog and digital copper to fiber voice/data converters which provide electrical isolation from environments with GPR, EMI and lightning disturbances.

Most Fiber Optic Link cards share the same standard specifications. **Please refer to the product data sheets** obtainable from our web site, or contact one of our sales engineers.

Typical Specifications*	
TRANSMISSION METHOD:	Frequency modulated light via two optical fibers
WAVELENGTH:	Multimode: 850nm Single Mode: 1310nm
FIBER TYPE/DISTANCE:	Multimode (62.5/125µm): 1.8 miles/3km Single-Mode (9/125µm): 9 miles/15km; Long Haul 37 miles/40km
FIBER CONNECTOR TYPE:	ST or SC
PHYSICAL DIMENSIONS:	7in. x 4in. x 1in. (177.8mm x 101.6mm x 25.4mm) (Standard RLH Fiber Card Form Factor)
OPERATING TEMPERATURE:	-40°F to +158°F (-40°C to +70°C)
OPERATING HUMIDITY:	95% non-condensing

*Typical specifications only. Please refer to the product data sheets for specific product specifications

Fiber Optic Links

- 2 Wire (POTS)
- 2 Wire Data (SCADA)
- 2 Wire DID
- 2 Wire ISDN
- 4 Wire Data (Analog/SCADA)
- 4 Wire Data with E&M
- 9.6K DDS
- 56K DDS
- T1
- 4x1 T1 Mux
- UHDSL
- 2 Wire Digital Phone
- RS-232
- Ethernet
- HDSL1 Adtran®
- DS3
- RS-422/485
- ADSL
- 4 Ch. Contact Closure
- 8 Ch. Contact Closure

2 WIRE POTS

The Fiber Optic Link 2 Wire POTS (Plain Old Telephone Service) system is compatible with standard analog telephones, faxes, modems, telemetering, PBX (loop start) that requires ringing. The 2 Wire POTS Fiber Optic Link System is compatible with any known Telco CO, Switch or PABX.

Fiber Type	Connector Style	2 Wire POTS CO Card (Line Power)	2 Wire POTS Sub Card (25-56VDC)
Multimode	ST	8806-1234-03	8806-1244-04
Multimode	SC	8805-1234-03	8805-1244-04
Single-mode	ST	8806-1261-01	8806-1271-02
Single-mode	SC	8805-1261-01	8805-1271-02
Single-mode (Long Haul)	ST	8806-1261-01LH	8806-1271-02LH
Single-mode (Long Haul)	SC	8805-1261-01LH	8805-1271-02LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

2 WIRE DATA

The Fiber Optic Link 2 Wire Data system provides 2-wire analog data service for AC data transmission services that do not require ringing. Such services include 2-wire: on-line modems, SCADA systems, and audio-tone protective relaying systems. The 2 Wire Data system provides a constant bidirectional transmission path.

Fiber Type	Connector Style	2 Wire Data CO Card (Line Power)	2 Wire Data CO Card (24-56VDC Local or Line Power)	2 Wire Data Sub Card (24-56VDC)
Multimode	ST	8806-1236-02	8806-1236-02LP	8806-1246-02
Multimode	SC	8805-1236-02	8805-1236-02LP	8805-1246-02
Single-mode	ST	8806-1363-01	8806-1363-01LP	8806-1373-02
Single-mode	SC	8805-1363-01	8805-1363-01LP	8805-1373-02
Single-mode (Long Haul)	ST	8806-1363-01LH	8806-1363-01LHLP	8806-1373-02LH
Single-mode (Long Haul)	SC	8805-1363-01LH	8805-1363-01LHLP	8805-1373-02LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

2 WIRE DID

The Fiber Optic Link DID (Direct Inward Dialing) system provides a fiber optic interface between a central office DID trunk line and subscriber PBX (loop start). The 2-wire DID System uses reverse battery signaling to communicate switching.

Fiber Type	Connector Style	2 Wire DID CO (Trunk) Card (24-56VDC)	2 Wire DID Sub (PBX) Card (Line Power)
Multimode	ST	8806-1264-01	8806-1274-04
Multimode	SC	8805-1264-01	8805-1274-04
Single-mode	ST	8806-1262-01	8806-1272-02
Single-mode	SC	8805-1262-01	8805-1272-02
Single-mode (Long Haul)	ST	8806-1262-01LH	8806-1272-02LH
Single-mode (Long Haul)	SC	8805-1262-01LH	8805-1272-02LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

2 WIRE ISDN

The Fiber Optic Link ISDN cards, both CO and Sub versions, are a fiber optic repeater for a 2-wire Basic Rate Interface (BRI) ISDN line. ISDN signals are sensed and recreated at both ends conforming to 2B1Q formats.

Fiber Type	Connector Style	2 Wire ISDN CO Card (24-56VDC Local Power)	2 Wire ISDN Sub Card (24-56VDC Local Power)
Multimode	ST	8806-1387-01	8806-1397-01
Multimode	SC	8805-1387-01	8805-1397-01
Single-mode	ST	8806-1388-01	8806-1398-01
Single-mode	SC	8805-1388-01	8805-1398-01
Single-mode (Long Haul)	ST	8806-1388-01LH	8806-1398-01LH
Single-mode (Long Haul)	SC	8805-1388-01LH	8805-1398-01LH

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4 WIRE ANALOG DATA

The Fiber Optic Link 4-wire Data system provides a transmission of 4-wire data signal over two optical fibers, and supports full duplex constant transmission up to 9600bps in voice-frequency or audible tone range (300Hz-3.4KHz). Common applications include SCADA and protective relay systems. CO and Sub 4-wire Data cards are electronically identical and may be interchanged.

Fiber Type	Connector Style	4 Wire Data CO Card (Line Powered or 24-56VDC)	4 Wire Data CO Card (Line Powered or 24-56VDC)
Multimode	ST	8806-1235-03	8806-1245-03
Multimode	SC	8805-1235-03	8805-1245-03
Single-mode	ST	8806-1279-01	8806-1289-01
Single-mode	SC	8805-1279-01	8805-1289-01
Single-mode (Long Haul)	ST	8806-1279-01LH	8806-1289-01LH
Single-mode (Long Haul)	SC	8805-1279-01LH	8805-1289-01LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

4 WIRE DATA E&M (CONTACT CLOSURE)

The Fiber Optic Link 4 Wire Data E&M cards (CO and Sub) provide point-to-point isolation of Telco or 4-wire PABX trunk lines using E&M leads. 4-wire data transfer is full duplex with constant transmission in both directions. E&M function can be modified* to transmit bidirectional contact closure.

Fiber Type	Connector Style	4 Wire Data E&M CO Card (Line Powered or 24-56VDC)	4 Wire Data E&M Sub Card (Line Powered or 24-56VDC)
Multimode	ST	8806-1238-02	8806-1248-02
Multimode	SC	8805-1238-02	8805-1248-02
Single-mode	ST	8806-1277-01	8806-1287-01
Single-mode	SC	8805-1277-01	8805-1287-01
Single-mode (Long Haul)	ST	8806-1277-01LH	8806-1287-01LH
Single-mode (Long Haul)	SC	8805-1277-01LH	8805-1287-01LH

* **Note:** Add **-SM11** to part number for Dry Contact Closure Input, add **-RJ** to part number to include RJ adapter with the card

4 WIRE 9.6 Kbps DDS

The Fiber Optic Link 4 Wire 9.6Kbps DDS cards (CO and Sub) process incoming bipolar signals within a bandwidth of 500 Hz to 50 kHz at a data rate of 2.4 Kbps to 9.6 Kbps.

Fiber Type	Connector Style	4 Wire 9.6 Kbps DDS CO Card (Line Powered or 24-56VDC)	4 Wire 9.6 Kbps DDS Sub Card (Line Powered or 24-56VDC)
Multimode	ST	8806-1313-01	8806-1323-01
Multimode	SC	8805-1313-01	8805-1323-01
Single-mode	ST	8806-1343-01	8806-1353-01
Single-mode	SC	8805-1343-01	8805-1353-01
Single-mode (Long Haul)	ST	8806-1343-01LH	8806-1353-01LH
Single-mode (Long Haul)	SC	8805-1343-01LH	8805-1353-01LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

4 WIRE 56 Kbps DDS

The Fiber Optic Link 4 Wire 56 Kbps DDS cards (CO and Sub) process incoming bipolar signals within a bandwidth of 1 kHz to 300 kHz at a data rate range of 19.2 kbps to 64 kbps.

Fiber Type	Connector Style	4 Wire 56 Kbps DDS CO Card (Local Power or 24-56VDC)	4 Wire 56 Kbps DDS Sub Card (Local Power 24-56VDC)
Multimode	ST	8806-1314-01	8806-1324-01
Multimode	SC	8805-1314-01	8805-1324-01
Single-mode	ST	8806-1318-01	8806-1328-01
Single-mode	SC	8805-1318-01	8805-1328-01
Single-mode (Long Haul)	ST	8806-1318-01LH	8806-1328-01LH
Single-mode (Long Haul)	SC	8805-1318-01LH	8805-1328-01LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

UHDSL

The Fiber Optic Link UHDSL (Universal HDSL) System interfaces with most HDSL technologies. The system interfaces one 2-pair HDSL1 or HDSL4 line, or up to two 1-pair HDSL2 lines.

Fiber Type	Connector Style	UHDSL CO Card (Line Powered)	UHDSL Sub Card (48 VDC)
Multimode	ST	8806-1439-01	8806-1449-01
Multimode	SC	8805-1439-01	8805-1449-01
Single-mode	ST	8806-1459-01	8806-1469-01
Single-mode	SC	8805-1459-01	8805-1469-01

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

4 WIRE T1

The Fiber Optic Link T-1 System processes bipolar signals within a bandwidth of 100 kHz to 10 MHz T-1 (1.544 Mbps or CCIT 2.084 Mbps). The T-1 card has an informative LED display for status monitoring. CO and Sub Cards are electrically identical.

Fiber Type	Connector Style	4 Wire T1/E1 CO Card (Line Powered or 24-56VDC)	4 Wire T1/E1 Sub Card (Line Powered or 24-56VDC)
Multimode	ST	8806-1315-02	8806-1325-02
Multimode	SC	8805-1315-02	8805-1325-02
Single-mode	ST	8806-1300-02	8806-1310-02
Single-mode	SC	8805-1300-02	8805-1310-02
Single-mode (Long Haul)	ST	8806-1300-02LH	8806-1310-02LH
Single-mode (Long Haul)	SC	8805-1300-02LH	8805-1310-02LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

Part Number	Description
RLH-RJT1-CO	RJ-48C Adapter for CO 4 Wire T1 Card
RLH-RJT1-SUB	RJ-48C Adapter for SUB 4 Wire T1 Card

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2 PAIR HDSL1 Adtran®

The 2-Pair HDSL1 Adtran Fiber Optic Link CO Card interfaces with a standard Adtran HTU-C units from the Central Office. The HDSL1 Adtran Sub Card interfaces a standard Adtran HTU-R unit. The CO and Sub HDSL1 Cards can be remotely tested. Remote loopback testing can be performed through HDSL1 System using in-band codes.

Fiber Type	Connector Style	2-Pair HDSL 1 Adtran® CO Card (Line Powered or 24-210VDC)	2-Pair HDSL 1 Adtran® Sub Card (Line Powered or 24-210VDC)
Multimode	ST	8806-1339-01	8806-1349-01
Multimode	SC	8805-1339-01	8805-1349-01
Single-mode	ST	8806-1340-01	8806-1350-01
Single-mode	SC	8805-1340-01	8805-1350-01

ADSL Fiber Optic Link

The RLH ADSL Fiber Optic System allows for a method of delivering ADSL copper service over a single pair of single mode or multimode fiber optic cable. The ADSL fiber system service then converts the data signal into 2 Wire DSL copper service for customer use. The system is compatible with DSL download data rates of up to 2.75Mbps.

Fiber Type	Connector Style	ADSL CO Card (44-56VDC Local Power)	ADSL Sub Card (44-56VDC Local Power)
Multimode	ST	8806-1550-01	8806-1560-01
Multimode	SC	8805-1550-01	8805-1560-01
Single-mode	ST	8806-1570-01	8806-1580-01
Single-mode	SC	8805-1570-01	8805-1580-01

DS3 (T3/E3)

The RLH DS3 Fiber Converter T3/E3 converts standard T3 (44.736Mbps) or E3 (34.368Mbps) coax to fiber conversion, and can be used by telco service providers and enterprise level users to connect to communication devices such as Utility, Wireless, PBX, Multiplexers, Routers and video servers via fiber optic cable. The T3/E3 system operates in pairs, extending distances over fiber, improving noise immunity and quality of service while improving intrusion protection, high voltage communications protection and network security.

Fiber Type	Connector Style	DS3 CO Fiber Card (24-56VDC Local Power)	DS3 Sub Fiber Card (24-56VDC Local Power)
Multimode	LC	8804-1501-01	8804-1511-01
Multimode	SC	8805-1501-01	8805-1511-01
Multimode	ST	8806-1501-01	8806-1511-01
Single-mode	LC	8804-1509-01	8804-1519-01
Single-mode	SC	8805-1509-01	8805-1519-01
Single-mode	ST	8806-1509-01	8806-1519-01
Single-mode (Long Haul)	LC	8804-1509-01LH	8804-1519-01LH
Single-mode (Long Haul)	SC	8805-1509-01LH	8805-1519-01LH
Single-mode (Long Haul)	ST	8806-1509-01LH	8806-1519-01LH

10/100 ETHERNET

The Fiber Optic Link 10/100 Ethernet interface card converts a 10/100BaseT RJ45 port to an optical signal for transmission over either multimode or single-mode fiber optic cable. It provides half or full duplex operation, features crossover switch for easy connection to hub or workstation, and is interoperable with other 10/100 BaseT and BaseFL devices. See the data sheet for single fiber bidirectional models.

Fiber Type	Connector Style	10/100 Ethernet CO/Sub Card (24-56VDC Local Power)	
Multimode	ST	EF4-MMSTD-02	2km / 1.25mi.
	SC	EF4-MMSCD-02	2km / 1.25mi.
Single-mode	ST	EF4-S1STD-02	20km / 12.4mi.
		EF4-S3STD-02	60km / 37mi.
		EF4-S4STD-02	120km / 74mi.
	SC	EF4-S1SCD-02	20km / 12.4mi.
		EF4-S3SCD-02	60km / 37mi.
		EF4-S4SCD-02	120km / 74mi.

GIGABIT ETHERNET

The RLH Fiber Optic Link Gigabit Ethernet Interface Card converts an IEEE 802.3ab compatible copper 1000BASE-T to a fiber optic 1000BASE-X transmission signal of either multimode or single-mode. Multimode and single-mode cards provide transmission of the data signals over a fiber optic facility to extend the circuit and provide electrical isolation between the network and distant connection.

Fiber Type	Connector Style	Gigabit Ethernet CO/Sub Card (24-56VDC Local Power)
Multimode	ST	8806-1512-01
Multimode	SC	8805-1512-01
Single-mode	ST	8806-1522-01
Single-mode	SC	8805-1522-01
Single-mode (Long Haul)	ST	8806-1522-01LH
Single-mode (Long Haul)	SC	8805-1522-01LH

RS-422/485 SERIAL DATA

The RLH Fiber Optic Link RS-422 and RS-485 Interface Card converts serial data signals in to optical transmission signals over single or mulitmode fiber. It is ideal for telco service providers and enterprise level users to connect to communication devices such as Utility, Wireless, PBX, Multiplexers, Routers and other serial data devices via fiber optic cable.

The RS422/485 system operates in pairs, extending distances over fiber, improving noise immunity and quality of service while improving intrusion protection, high voltage communications protection and network security.

Fiber Type	Connector Style	RS-422/485 Fiber Optic Link Card
Multimode	ST	8806-1532-01
Multimode	SC	8805-1532-01
Single-mode	ST	8806-1542-01
Single-mode	SC	8805-1542-01
Single-mode (Long Haul)	ST	8806-1542-01LH
Single-mode (Long Haul)	SC	8805-1542-01LH

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RS-232 SERIAL DATA

The Fiber Optic Link RS-232 Serial Data interface card converts a RS-232 DB-9 port (DTE or DCE) to an optical transmission signal for transmission over either multimode of single-mode fiber. The RS-232 system provides half or full duplex operation, loop capability for remote fiber testing, and informative LED indicators for status monitoring.

Fiber Type	Connector Style	RS-232 Serial Data CO/Sub Card (24-56VDC Local Power)
Multimode	ST	8806-1530-04
Multimode	SC	8805-1530-04
Single-mode	ST	8806-1540-04
Single-mode	SC	8805-1540-04
Single-mode (Long Haul)	SC	8805-1540-04LH

2 WIRE DIGITAL PHONE

The Fiber Optic Link Digital Phone System processes incoming bipolar signal connecting a digital phone set (TEL) and switch or PBX. The Digital Phone card has an informative LED display for status monitoring. The Digital Phone Fiber Optic Link system is compatible with most commonly used key systems including Nortel Meridian, Avaya, Panasonic and Samsung DCS.

Fiber Type	Connector Style	2 Wire Digital Phone CO Card (24-56VDC Local Power)	2 Wire Digital Phone Sub Card (48VDC)
Multimode	ST	8806-1334-02	8806-1344-02
Multimode	SC	8805-1334-02	8805-1344-02
Single-mode	ST	8806-1361-02	8806-1371-02
Single-mode	SC	8805-1361-02	8805-1371-02

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

AC/DC FIBER OPTIC ALARM SYSTEM

This system allows a method of remotely monitoring an AC or DC power failure over fiber. Each system requires a Transmit Card and a Receive Card, available separately.

The monitored AC or DC power source is connected directly to the RLH Fiber Optic Alarm Transmit Card. The Fiber Optic Alarm Receive Card is located at the opposite end of the fiber optic cable and is locally powered.

The Transmit Card includes an AC/DC power adapter that plugs into a standard AC outlet. This permits direct monitoring of an AC power source.

Part Number	Description	Fiber Type	Connector Style
8806-1505-01	AC/DC Fiber Optic Alarm System Transmit Card with Power Adapter	Multimode	ST
8805-1505-01	AC/DC Fiber Optic Alarm System Transmit Card with Power Adapter	Multimode	SC
8806-1525-01	AC/DC Fiber Optic Alarm System Transmit Card with Power Adapter	Single Mode	ST
8805-1525-01	AC/DC Fiber Optic Alarm System Transmit Card with Power Adapter	Single Mode	SC
8806-1515-01	AC/DC Fiber Optic Alarm System Receive Card	Multimode	ST
8805-1515-01	AC/DC Fiber Optic Alarm System Receive Card	Multimode	SC
8806-1535-01	AC/DC Fiber Optic Alarm System Receive Card	Single Mode	ST
8806-1535-01	AC/DC Fiber Optic Alarm System Receive Card	Single Mode	SC

MINI CONVERTER VIDEO SYSTEM

The RLH Mini Video Converter is a compact, single channel, plug and play standalone video over fiber converter that is perfect for individual channel monitoring.

It comes standard with an auto configuring video port, fiber optic port, and an additional port with several different options including an auto sensing RS232/422/485 data port for remote Pan-Tilt-Zoom (PTZ) camera control from a PTZ controller, or for use as a standard data port. See the product sheet for additional port options.

A typical system consists of a transmitter and a receiver unit as a set.

Mini Converter Part Number Matrix

RLH - MV - S1 ST - B A T - 01

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 3km distance
S1 = Single Mode, 20km distance
S2 = Single Mode, 40km distance
S3 = Single Mode, 120km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Model Designation

TX/RX
T = Transmitter
R = Receiver

Powering Option
A = 115VAC power adapter
U = 24VDC power adapter
V = 48VDC power adapter

Port Option
N = None
B = Bi-directional Data RS232, RS422, RS485
D = Single Way Data RS232, RS422, RS485
A = Bi-directional Audio
R = Reverse Audio
E = Ethernet 10/100
T = Analog Telephone
S = I/O Switch

Example: RLH-MV-MMST-BAT-01
Mini Video Converter, multimode fiber, ST connector, bi-directional data port, 115VAC, transmitter module.

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MINI CONVERTER TURN-KEY UNITS

RLH Mini Video Turn-key Units are pre-configured weatherproof cabinets that offer a fast and convenient way to set up a fiber optic video link. These units feature a RLH Mini Video Converter with power supply pre-installed into a weatherproof, NEMA rated, mini fiberglass cabinet.

Turn-key units offer rapid and uniform installation at the job site and are ready for fiber, power, copper connections, and video plug-in. Mini Video Turn-key units offer substantial cost savings and have all necessary equipment pre-installed and pre-wired. These Turn-key are perfect remote add-ons to our Mini Video Converter, Standalone Video Mux system, or Rack Mount multichannel systems.

Mini Video Converter Turn-key

Interior view

The cabinets are equipped with a hinged door with document pocket, padlock locking capability, foam gasket seal, vents, and painted, fire treated 3/4" plywood backboard. Constructed of fiberglass-reinforced material the cabinet has excellent temperature and chemical resistance. It may be wall or pole mounted, and is easily drilled at the site for conduit or cable pass-through.

Options include commercial grade DIN rail power supply with DIN rail, ready to add your own DIN mount equipment. This is a very flexible system, easily tailored to your own use with additional camera power supplies, thermal management, etc.

Turn-key Mini Converter Part Number Matrix

RLH - MV - S1 ST - B A T - 01 - TU

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 3km
S1 = Single Mode, 20km distance
S2 = Single Mode, 40km distance
S3 = Single Mode, 120km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Turn-key Unit

Model Designation

TX/RX
T = Transmitter
R = Receiver

Powering Option
A = 115VAC power adapter
U = 24VDC power adapter
V = 48VDC power adapter

Port Option
N = None
B = Bi-directional Data RS232, RS422, RS485
D = Single Way Data RS232, RS422, RS485
A = Bi-directional Audio
R = Reverse Audio
E = Ethernet 10/100
T = Analog Telephone
S = I/O Switch

Example: RLH-MV-MMST-BAT-01-TU
Turn-key Mini Video Converter, pre-installed in cabinet, multimode fiber, ST connector, bi-directional data port, 115VAC power adapter, transmitter module.

RS-232/485/422 SERIAL DATA OVER FIBER

The RLH Serial Data Over Fiber system is a multifunction converter that supports asynchronous serial communications (RS-232/485/422) over fiber optic cable and provides long distance transmission capability up to 12.4 Miles (20km). Standards may be mixed and matched, so that RS-232 devices can be connected to RS-485/422 devices, or 2-wire RS-485 devices can be connected to 4-wire RS-422 devices without the need for a converter and isolator.

It is auto-sensing and self-compensating, requiring no switches, jumpers or other configuring. The auto-turnaround feature eliminates the need for flow control when working with RS-485 signals.

Serial Data Over Fiber Part Number Matrix

RLH - SD - MM ST - A - 01

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 2km distance
S1 = Single Mode, 25km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Model Designation

Powering Option
N = Power supply not included
A = 115VAC power supply

Example: RLH-SD-MMST-A-01
Serial Data over Fiber Converter, multimode fiber, ST connector, with 115VAC power supply, model 01.

RS-232 SERIAL DATA OVER FIBER WITH DB-9 CONNECTOR

The RLH RS-232 Serial Data Over Fiber system is a converter that supports asynchronous serial communications over fiber optic cable providing transmission capability up to 15.5 Miles (25km), and immunity to EMI/RFI and transient surges.

RS-232 devices can be connected directly to the DB-9 connector, supporting serial data rates up to 115.2kbps, and is auto-sensing and self-compensating, requiring no switches, jumpers or other configuring. Wall or DIN rail mountable.

RS-232 Serial Data Over Fiber Part Number Matrix

RLH - RD - MM ST - A - 01

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 2km distance
S1 = Single Mode, 25km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Model Designation

Powering Option
N = Power supply not included
A = 115VAC power supply

Example: RLH-RD-MMST-A-01
Serial RS-232 Data over Fiber Converter, multimode fiber, ST connector, with 115VAC power supply, model 01.

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MODULAR ETHERNET OVER FIBER SYSTEM

The RLH Modular Ethernet Over Fiber system is a multifunction media converter that supports 10/100 Ethernet communications over fiber optic cable. The plug-in design of this system enables up to 16 modules to be installed in a 2RU 19" rack mount. The rack enclosure features dual hot swap power supplies for redundant operation.

Fiber optics provide long distance Ethernet transmission capability up to 24.8 Miles (40km).

The modules converts between 10/100BaseT(X) and 100Base FX segments of the same network. The converter supports Link Fault Pass-through (LFP) for easily tracing network link failures, and the LFP function enhances the integrity and conformity of TP-to-Fiber linking to make the network easier to maintain.

2RU Ethernet Over Fiber Rack System

RLH - ER - A - 01

- RLH — Manufacturer
- ER — Product Designation
- A — Powering Option
  - A = 115VAC
  - V = 48VDC
- 01 — Model Designation

Example: RLH-VR-A-01
9 slot video rack system with dual 115VAC power

2RU Ethernet Data Over Fiber Plug-in Card
Part Number Matrix

RLH - E2 - S1 ST - 01

- RLH — Manufacturer
- E2 — Product Designation
- S1 — Fiber Type
  - MM = Multimode, 2km distance
  - S1 = Single Mode, 25km distance
  - S2 = Single Mode, 40km distance
- ST — Fiber Connector Style
  - ST = ST Connector
  - SC = SC Connector
  - FC = FC Connector
- 01 — Model Designation

Example: RLH-E2-MMST-A-01
2RU 10/100 Ethernet Data over Fiber Converter Plug-in Card, multimode fiber, ST connector

10/100/1000Mbit ETHERNET OVER FIBER

The RLH Ethernet Over Fiber system is a multifunction converter that supports up to 1Gbit Ethernet communications over fiber optic cable. Fiber optics not only provide the long distance Ethernet transmission capability up to 24.8 Miles (40km), but also provide immunity to EMI/RFI and transient surges. They are ideal for data communications near large electrical equipment or where radio interference can be an issue.

Choose between standard 10/100Mbit, and high speed 10/100/1000Mbit models.

The Ethernet converter converts between 10/100/1000BaseT(X) and 1000Base FX segments of the same network. The converter supports Link Fault Pass-through (LFP) for easily tracing network link failures, and the LFP function enhances the integrity and conformity of TP-to-Fiber linking to make the network easier to maintain.

It is powered by an external 5VDC power supply that plugs into the back. Low cost power supplies are available for 115VAC, 24VDC or 48VDC sources.

Ethernet Data Over Fiber Part Number Matrix

RLH - ED - S1 ST - 1 A - 01

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 2km distance
S1 = Single Mode, 25km distance
S2 = Single Mode, 40km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Model Designation

Powering Option
N = Power supply not included
A = 115VAC power supply
U = 24VDC power supply
V = 48VDC power supply

Ethernet
1 = 10/100M
2 = 10/100/1000M

Example: RLH-ED-MMST-1N-01
10/100 Ethernet Data over Fiber Converter, multimode fiber, ST connector, 10/100M ethernet, power supply not included.

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T1 4x1 MUX

The T1 Multiplexer (or Fiber Mux System) transports up to four T1 lines over two strands of fiber. The 4x1 card has B8ZS and AMI compatibility, and contains LED status indicators for convenient system monitoring. The T1 4x1 Fiber Mux card can be installed into any Fiber Optic Link shelf or housing, providing high density T1 over fiber in a single card slot. The T1 4x1 Mux card is a cost effective solution for high capacity applications.

With Screw Terminals

With RJ Adapters

Fiber Type	Connector Style	T1 4x1 Mux CO Card (Line Powered or 24-56VDC)	T1 4x1 Mux Sub Card (Line Powered or 24-56VDC)
Multimode	ST	8806-1345-01	8806-1355-01
Multimode	SC	8805-1345-01	8805-1355-01
Single-mode	ST	8806-1385-01	8806-1395-01
Single-mode	SC	8805-1385-01	8805-1395-01
Single-mode (Long Haul)	ST	8806-1385-01LH	8806-1395-01LH
Single-mode (Long Haul)	SC	8805-1385-01LH	8805-1395-01LH

* **Note:** Add **-RJ** to part number to include RJ adapter with the card

Part Number	Description
RLH-RJ4X1-CO	Pack of 4 RJ-48C Adapters for CO T1 4x1 Mux Cards
RLH-RJ4X1-SUB	Pack of 4 RJ-48C Adapters for SUB T1 4x1 Mux Cards

4 AND 8 CHANNEL CONTACT CLOSURE

The Fiber Optic Link Contact Closure system provides a transmission of up to four independent contact closure signals over one optical fiber. The transmitter card provides the electrical-to-optical interface between dry contact closure relay input and a fiber strand.

The Contact Closure receiver card provides the optical-to-electrical interface between a fiber strand and normally-open relay contact output. The Receiver card is locally powered by a 24-56VDC source and provides LED indicators to display relay conditions, power, and fiber carrier receive.

4 Channel Contact Closure Card

8 Channel Contact Closure Card

Fiber Type	Connector Style	4 Ch. Contact Closure Transmitter (24-56VDC Local Power)	4 Ch. Contact Closure Receiver (24-56VDC Local Power)
Multimode	ST	8806-1504-01	8806-1514-01
Multimode	SC	8805-1504-01	8805-1514-01
Single-mode	ST	8806-1524-01	8806-1534-01
Single-mode	SC	8805-1524-01	8805-1534-01
Single-mode (Long Haul)	ST	8806-1524-01LH	8806-1534-01LH
Single-mode (Long Haul)	SC	8805-1524-01LH	8805-1534-01LH

Fiber Type	Connector Style	8 Ch. Contact Closure Transmitter (24-56VDC Local Power)	8 Ch. Contact Closure Receiver (24-56VDC Local Power)
Multimode	ST	8806-1508-01	8806-1518-01
Multimode	SC	8805-1508-01	8805-1518-01
Single-mode	ST	8806-1528-01	8806-1538-01
Single-mode	SC	8805-1528-01	8805-1538-01
Single-mode (Long Haul)	ST	8806-1528-01LH	8806-1538-01LH
Single-mode (Long Haul)	SC	8805-1528-01LH	8805-1538-01LH

4 CHANNEL 4-20MA / 0-10VDC

The Fiber Optic Link 4-20mA / 0-10VDC analog system provides a transmission of up to four independent analog signals over one optical fiber.

The Transmitter card provides the electrical-to-optical interface between four independent analog 4-20mA or 0-10VDC inputs and a fiber strand. Each channel can be selected for 4-20mA or 0-10V signal protocols.

The Receiver Card provides the optical-to-electrical interface between the fiber strand and four independent analog 4-20mA or 0-10VDC outputs.

Fiber Type	Connector Style	4 Channel 4-20mA/0-10V Transmitter (24-56VDC Local Power)	4 Channel 4-20mA/0-10V Receiver (24-56VDC Local Power)
Multimode	ST	8806-1506-01	8806-1516-01
Multimode	SC	8805-1506-01	8805-1516-01
Single-mode	ST	8806-1526-01	8806-1536-01
Single-mode	SC	8805-1526-01	8805-1536-01
Single-mode (Long Haul)	ST	8806-1526-01LH	N/A
Single-mode (Long Haul)	SC	8805-1526-01LH	N/A

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4 to 30 Channel Analog Phone Fiber Mux System

The RLH 4 to 30 Channel Analog Phone Fiber Mux Systems provide a method of multiplexing up to 30 analog (POTS) channels over a single pair of multimode or single mode fibers. This system solves the problem of limited available fiber, reduces equipment space and lowers overall equipment costs.

16 Ch. POTS Mux Front

16 Ch. POTS Mux Rear

In addition to POTS lines, the Mux System provides four 10/100 Base-T Ethernet ports and up to two RS-232 ports (depending on model). With these additional ports, the Analog Phone FIber Mux Systems is a complete solution for transporting POTS, Ethernet and RS-232 data over a single fiber pair.

It is available with either 48VDC or 115VAC powering options, has convenient front panel LED status indicators, output connections on the rear panel, and comes with mounting hardware and universal rack ears for standard EIA 19" rack mounting.

Standard Specifications	
CONSTRUCTION:	Aluminum Alloy, powder coated
MOUNTING STYLE:	Table top or standard EIA 19" rack mount (rack ears and attaching hardware included)
POWER CONNECTIONS:	Rear panel AC grounded power cord (Supplied) or DC screw type terminals
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

POTS Mux Part Number Matrix

RLH - PM - S1 ST - 4 A - 01

Manufacturer

Product Designation

Fiber Type
MM = Multimode, 2km distance
S1 = Single Mode, 40km distance
S2 = Single Mode, 80km distance
S3 = Single Mode, 120km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Model Designation

Powering Option
A = 115VAC power supply
V = 48VDC power supply

POTS Line Capacity
1 = 4 POTS Lines
2 = 8 POTS Lines
3 = 16 POTS Lines
4 = 30 POTS Lines

Example: RLH-PM-S1ST-4A-01
RLH POTS Mux configured with Single Mode fiber, 40km distance, ST connectors, 16 POTS lines capacity, 115VAC power.

RLH VIDEO OVER FIBER MUX SYSTEMS

The RLH Video Mux System is the flexible mulit-port member of the Video Over Fiber family. This system uses video mux modules available in either a convenient standalone housing, or a rack module that can be combined into our redundant power, EIA 19" 4RU rack chassis.

Perfect for multi-channel monitoring, the modules may be combined together to transmit up to 64 video channels over a single fiber. Each module may contain up to 8 video channels, and up to 9 modules for may be used in the rack chassis for a total of 72 channels.

Standard features include auto configuring video channels, fiber optic port, and up to 4 additional port options, depending on configuration. Options include auto sensing single way or bi-directional data port for remote PTZ camera control from a PTZ controller or data transmission, 10/100 full/half auto negotiating ethernet port, reverse audio, bi-directional audio, and analog telephone.

A typical system consists of a transmitter and a receiver unit as a set.

Standard Features
Multi channel video over fiber solution
Up to 8 video channels per stand-alone or rack module
Up to 64 video channels over 1 fiber
Available in Single or Multi-mode, up to 74mi /120km fiber range
Auto sensing video NTSC/PAL/SECAM via BNC connector
Simultaneous transmission of video, data and audio
Large dynamic range, no video or fiber adjustments required
Eliminates EMI, RFI, cross talk or ground loop issues
Powering options include 115VAC, 24VDC or 48VDC. 5VDC power adapter included.
Ethernet, I/O switch, data, analog, voice or analog telephone port options
Data port is auto configuring RS232/422/485 port for convenient PTZ camera control
High quality 10-bit uncompressed video transmission
Automatically supports any high resolution signal

2 Channel Standalone Module

2 Channel Rack Module

Rack Module and 19" Rack Housing

Video Mux Modules Part Number Matrix

RLH – VM 8 – S1 ST – B E N N R T – 01

Manufacturer

Product Designation

Number of Video Channels
1 to 8 (See Port Options)

Fiber Type
MM = Multimode, 3km
S1 = Single Mode, 20km distance
S2 = Single Mode, 40km distance
S3 = Single Mode, 120km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Ports 1&2 Options
N = None
B = Bi-directional Data RS232, RS422, RS485
D = Single Way Data RS232, RS422, RS485
A = Bi-directional Audio
R = Reverse Audio
E = Ethernet 10/100
T = Analog Telephone
S = I/O Switch

Port 1 Option
Port 2 Option
Port 3 Option
Port 4 Option

Ports 3&4 Options
(Use None if less than 5 video channels)
N = None
B = Bi-directional Data RS232, RS422, RS485
D = Single Way Data RS232, RS422, RS485
A = Bi-directional Audio
R = Reverse Audio
E = Ethernet 10/100
T = Analog Telephone
S = I/O Switch

Module Type
S = Standalone - 115VAC power adapter
U = Standalone - 24VDC power adapter
V = Standalone - 48VDC power adapter
R = Rack Module

Video TX/RX
T = Transmitter
R = Receiver

Model Designation

Example: RLH-VM6-MMST-EBANRR-01

Video mux module, 6 video channels, multimode fiber, ST connector
1 etherenet port, 1 bi-directional data port, 1 bidirectional audio port, rack mount module, video receiver module

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RLH VIDEO OVER FIBER POWERED RACK CHASSIS

Multiplexers

RLH Video Over Fiber Mux modules are installed into this redundant power, EIA 19" 4RU rack chassis. Modules may be combined together in this rack chassis to transmit up to 64 video channels over a single fiber. Up to 9 modules may be used in the rack chassis for a total of 72 channels. Modules may be ordered pre-installed in rack chassis. Additional modules may be installed at any time.

115VAC, 24VDC and 48VDC operating voltages are available. Each chassis has dual power supplies that are redundant and auto-switching. Modules slide into rails and and plug into the chassis. Empty slots are covered by blank plates. Rack ears may be flipped to mount on the module side for flexible rack mounting.

Rack Chassis Front

Rack Chassis Rear

Video Rack System

RLH - VR - A - 01

Manufacturer

Product Designation

Model Designation

Powering Option
A = 115VAC
U = 24VDC
V = 48VDC

Example: RLH-VR-A-01

9 slot video rack system with dual 115VAC power

VIDEO MUX TURN-KEY UNITS

RLH Video Mux Turn-key Units are pre-configured weatherproof cabinets that offer a fast and convenient way to set up a fiber optic video link. They feature a RLH Video Mux Module with power supply pre-installed into a weatherproof, NEMA 4X rated, mini fiberglass cabinet.

Video Mux Turn-key units have all necessary equipment pre-installed and pre-wired. These Turn-key are perfect remote add-ons to our Standalone Video Mux system, or Rack Mount multichannel systems.

Video Mux Turn-key

Interior view

The cabinets are equipped with a hinged door with document pocket, padlock locking capability, foam gasket seal, vents, and painted, fire treated 3/4" plywood backboard. Constructed of fiberglass-reinforced material the cabinet has excellent temperature and chemical resistance. It may be wall or pole mounted, and is easily drilled at the site for conduit or cable pass-through.

Options include commercial grade DIN rail power supply with DIN rail, ready to add your own DIN mount equipment. This is a very flexible system, easily tailored to your own use with the addition of additional camera power supplies, battery backup, thermal management, etc.

Video Mux Turn-key Unit Part Number Matrix

RLH - VM 8 - S1 ST - D E N N R T - 01 - TU

Manufacturer

Product Designation

Number of Video Channels
1 to 8 (See Port Options)

Fiber Type
MM = Multimode, 3km
S1 = Single Mode, 20km distance
S2 = Single Mode, 40km distance
S3 = Single Mode, 120km distance

Fiber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Ports 1&2 Options
Port 1 Option
Port 2 Option
N = None
R = Reverse Audio
B = Bidirectional Audio
D = Single Way Data RS232, RS432, RS485
G = Bi-directional Data RS232, RS432, RS485
S = I/O Switch
E = Ethernet 10/100
T = Analog Telephone

Turn-key Unit

Model Designation

Video TX/RX
T = Transmitter
R = Receiver

Module Type
S = Standalone - 115VAC power adapter
U = Standalone - 24VDC power adapter
V = Standalone - 48VDC power adapter

Ports 3&4 Options
(Use None if less than 5 video channels)
Port 3 Option
Port 4 Option
N = None
R = Reverse Audio
B = Bidirectional Audio
D = Single Way Data RS232, RS432, RS485
G = Bi-directional Data RS232, RS432, RS485
S = I/O Switch
E = Ethernet 10/100
T = Analog Telephone

Example: RLH-VM6-MMST-EDBNRT-01-TU

Video mux turn-key unit, 6 video channels, multimode fiber, ST connector
1 etherenet port, 1 data port, 1 bidirectional audio port, video transmitter.

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IMUX MODULAR MULTIPLEXER SYSTEM

The iMux is a powerful fiber optic modular multiplexer capable of providing up to 16 channels of E1, T1, V.35 (RS530), X.21, RS232, analog phone FXO/FXS, in addition to four built-in 10/100M Ethernet ports, over a single fiber port.

Modules plug into slots in the back of unit and provide 4 ports per module. Up to 4 modules may be installed in any combination, and modules may be ordered separately. One or two dual fiber or single bi-directional fiber (WDM) optical plug-in modules are installed into the front of the unit, providing 1+1 hot-swappable optical protection.

The iMux may be managed through SNMP, web Interface, VT100 craft port or LCD/menu keys on the front panel. It also has an external alarm port for alarm input monitor purposes, and an alarm port with four alarm contacts.

An Embedded Operation Channel (EOC) is maintained between local and remote sides for system configuration, testing, performance and alarm monitoring of each E1 channel and optical link.

It comes complete with EIA19" and 23" rack ears using 1RU, or may be used on a desktop or shelf. The iMux provides local/remote loopback functions for optical and E1 interfaces, and is ideal for network testing and maintenance.

Standard Features
E1, T1, V.35, RS530, X.21, RS232, FXO/FXS, and 10/100Base-T Ethernet ports
Up to 4 modules (each with 4 ports) may be used in any combination to mix and match service
Optical module auto laser shutdown (ALS), hot swappable 1+1 protection
Aggregated Ethernet throughput up to 100Mbps
Alarm relay has major and minor alarms (audible and visible alarm output)
Supports SNMP , HTTP / FTP / TFTP remote software upgradeable. Supports TELNET function to configure and monitor local and remote devices through TCP/IP network
Includes optical line local loopback and remote loopback functions External clock (Optional):E1 external TTL clock or PCM data Input through DB-9 connector
Class 1 Laser optical module is safety standard IEC 825 compliant
Dual optical fiber and single bi-directional fiber modules are avialable
May be powered by 24/48VDC power supply or 115VAC
EIA 19" / 23" 1RU rack or wall mountable

iMux Front Panel

iMux Rear Panel with Modules installed

iMux POTS module

iMux Modular Multiplexer

RLH – IM – S1 ST – 2 D – T1 – T1 – NO – NO – A – 01

Manufacturer

Product Designation

FIber Type
MM = Multimode, 2km distance
S1 = SIngle Mode, 25km distance
S2 = Single Mode, 40km distance

FIber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector

Number of Optical Modules
1 = Single Optical Module
2 = Dual Optical Modile

Model Designation

Powering Option
A = 115VAC
U = 24VDC
V = 48VDC

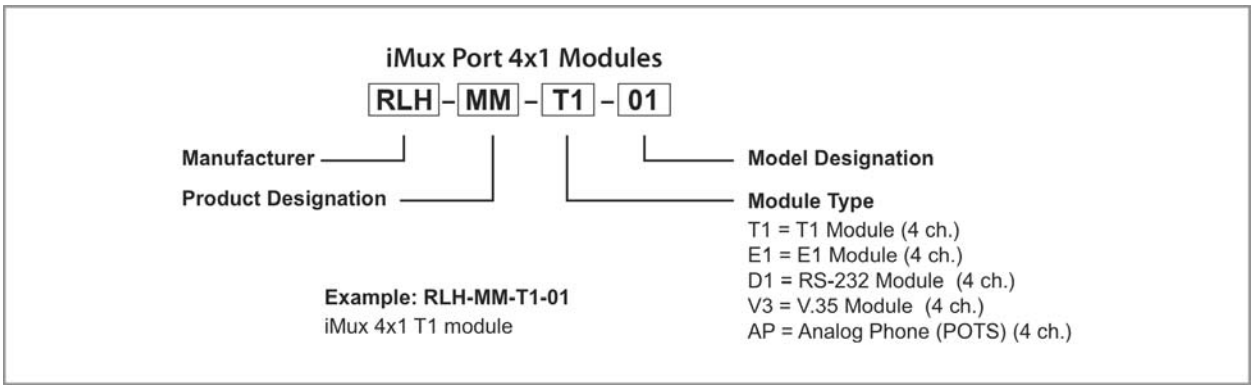
Module Types
NO = None
T1 = T1 Module (4 ch.)
E1 = E1 Module (4 ch.)
D1 = RS-232 Module (4 ch.)
V3 = V.35 Module (4 ch.)
AP = Analog Phone (POTS) (4 ch.)

Optical Module Type
D = Dual Fiber
S = Single Fiber (bi-directional)

Example: RLH-IM-S1ST-1D-T1T1NONO-A-01
iMux multiplexer system with 2 dual fiber, single mode optical moduleswith ST connectors, 2 T1 modules, 115VAC power.

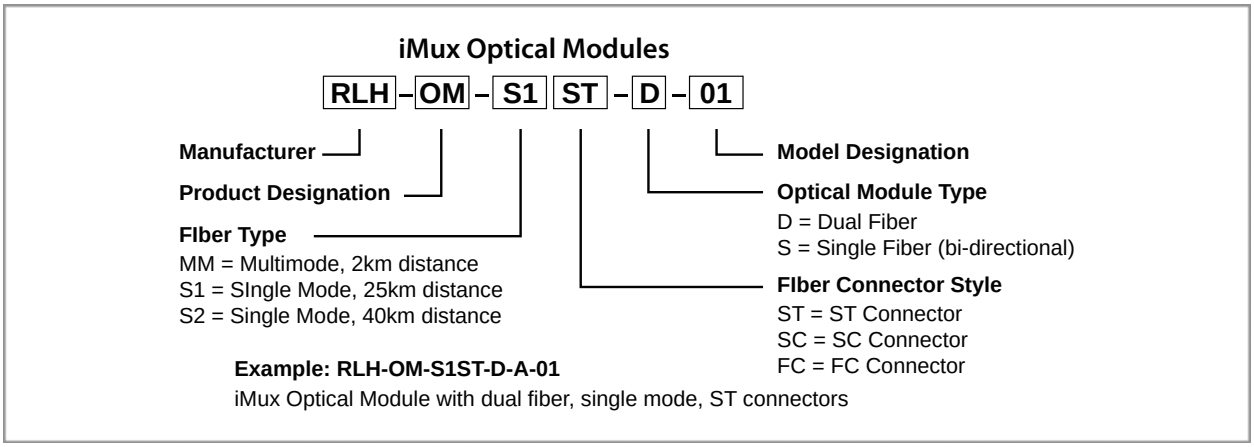
IMUX SERVICE MODULES

RLH iMux Service Modules provide 4 channels of T1, E1, RS-232, V.35 or analog phone (POTS) service. They are field installable and can be used to expand the iMux system or as spares.


iMux Port 4x1 Modules
RLH – MM – T1 – 01
Manufacturer
Product Designation
Model Designation
Module Type
T1 = T1 Module (4 ch.)
E1 = E1 Module (4 ch.)
D1 = RS-232 Module (4 ch.)
V3 = V.35 Module (4 ch.)
AP = Analog Phone (POTS) (4 ch.)
Example: RLH-MM-T1-01
iMux 4x1 T1 module

IMUX OPTICAL MODULES

RLH iMux Optical Modules are available in single or multimode, single or dual fiber, and a range of connector styles.. One or two dual fiber or single bi-directional fiber (WDM) optical plug-in modules may be installed into the front of the unit, providing 1+1 hot-swappable optical protection. They are field installable.


iMux Optical Modules
RLH – OM – S1 ST – D – 01
Manufacturer
Product Designation
FIber Type
MM = Multimode, 2km distance
S1 = SIngle Mode, 25km distance
S2 = Single Mode, 40km distance
Model Designation
Optical Module Type
D = Dual Fiber
S = Single Fiber (bi-directional)
FIber Connector Style
ST = ST Connector
SC = SC Connector
FC = FC Connector
Example: RLH-OM-S1ST-D-A-01
iMux Optical Module with dual fiber, single mode, ST connectors

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SINGLE CARD & DUAL CARD HOUSING - INDOOR

The RLH Single and Dual Card Housings provide a convenient and low cost mounting for one or two Fiber Optic Link cards.

The thermoplastic housing is designed for wall mount installations and has a hinged door that is secured with a 3/8 inch hex nut.

The single card housing is available as a unit with a Fiber Optic Link card pre-installed.

Housing

Shown with pre-installed Fiber Optic Link Card

The housing may be ordered with an internal power adapter that accepts AC (100-240V) or DC (110-330V) input with a 24VDC or 48VDC output to the Fiber Optic Link Card.

Part Number	Description	Power Adapter
8806-1200-03	Single Card Housing - Indoor	None
8806-1200-03PA-24	Single Card Housing - Indoor	With 24VDC Power Adapter
8806-1200-03PA-48	Single Card Housing - Indoor	With 48VDC Power Adapter
8806-1200-06	Dual Card Housing - Indoor	None

PRE-ASSEMBLED SINGLE CARD INDOOR UNITS

RLH Pre-assembled units feature a single Fiber Optic Link card installed into a single card housing. All pre-installed units have standard ST connectors, and models with 24V or 48V power adapters are available*.

Part Number	Description	Fiber Optic Link Card Pre-installed
8806-1211-04LD	2 Wire POTS Sub MM Unit	8806-1244-04
8806-1212-03LD	2 Wire POTS CO MM Unit	8806-1234-03
8806-1219-02LD	4 Wire Data Sub MM Unit	8806-1245-03
8806-1220-02LD	4 Wire Data CO MM Unit	8806-1235-03
8806-1253-02LD	4 Wire E&M Sub MM Unit	8806-1248-02
8806-1254-02LD	4 Wire E&M CO MM Unit	8806-1238-02
8806-1331-02LD	4 Wire 9.6Kbps DDS Sub MM Unit	8806-1328-01
8806-1332-02LD	4 Wire 9.6Kbps DDS CO MM Unit	8806-1313-01
8806-1335-02LD	4 Wire 56Kbps DDS Sub MM Unit	8806-1324-01
8806-1336-02LD	4 Wire 56Kbps DDS CO MM Unit	8806-1314-01
8806-1337-02LD	T-1 Sub MM Unit	8806-1325-02
8806-1338-02LD	T-1 CO MM Unit	8806-1315-02
8806-1303-01LD	4 Wire 56Kbps DDS CO SM Unit	8806-1318-01
8806-1304-01LD	4 Wire 56Kbps DDS Sub SM Unit	8806-1328-01
8806-1319-02LD	T-1 CO SM Unit	8806-1300-02
8806-1320-02LD	T-1 Sub SM Unit	8806-1310-02

* **Note:** Add **PA-24** to part number to include 24V power adapter. Add **PA-48** to part number to include 48V power adapter.

SINGLE CARD & DUAL CARD HOUSING - INDOOR/OUTDOOR

The RLH single and dual card indoor/outdoor housings provide a weatherproof mounting for either one or two Fiber Optic Link cards. The housing is a plastic enclosure that may be mounted to a wall or pole. The Fiber Card is installed via 3 plastic screws in the single card version, or a two card guide rail in the dual card version,

The housing allows for storage of fiber slack and includes fiber management hardware.

The hinged door closes securely with 2 snap latches, and may be secured with the 3/8" hex bolt. The unit includes rubber grommet seals that allow entrance of fiber optic cable and copper wiring into the housing.

The housing may be ordered with a pre-installed, internal power adapter that accepts AC (100-240V) or DC (110-330V) input with a 24VDC or 48VDC output to the Fiber Optic Link Card.

Part Number	Description	Power Adapter
8806-1200-04	Single Card Housing - Indoor/Outdoor	None
8806-1200-04PA-24	Single Card Housing - Indoor/Outdoor	With 24VDC Power Adapter
8806-1200-04PA-48	Single Card Housing - Indoor/Outdoor	With 48VDC Power Adapter
8806-1200-05	Dual Card Housing - Indoor/Outdoor	None
8806-1200-05PA-24	Dual Card Housing - Indoor/Outdoor	With 24VDC Power Adapter
8806-1200-05PA-48	Dual Card Housing - Indoor/Outdoor	With 48VDC Power Adapter

* **Note:** Use with Pole Mount Bracket **RLH-PMK-02**, or add **-PMK** to part number to include Pole Mount Bracket with order.

PRE-ASSEMBLED SINGLE CARD INDOOR/OUTDOOR UNITS

RLH Pre-assembled units feature a single Fiber Optic Link card installed into a single card housing. All pre-installed units have standard ST connectors, and models with 24V or 48V power adapters are available*.

Part Number	Description	Fiber Optic Link Card Pre-installed
8806-1211-04	2 Wire POTS Sub MM Unit	8806-1244-04
8806-1212-03	2 Wire POTS CO MM Unit	8806-1234-03
8806-1219-02	4 Wire Data Sub MM Unit	8806-1245-03
8806-1220-02	4 Wire Data CO MM Unit	8806-1235-03
8806-1253-02	4 Wire E&M Sub MM Unit	8806-1248-02
8806-1254-02	4 Wire E&M CO MM Unit	8806-1238-02
8806-1331-02	4 Wire 9.6Kbps DDS Sub MM Unit	8806-1328-01
8806-1332-02	4 Wire 9.6Kbps DDS CO MM Unit	8806-1313-01
8806-1335-02	4 Wire 56Kbps DDS Sub MM Unit	8806-1324-01
8806-1336-02	4 Wire 56Kbps DDS CO MM Unit	8806-1314-01
8806-1337-02	T-1 Sub MM Unit	8806-1325-02
8806-1338-02	T-1 CO MM Unit	8806-1315-02
8806-1303-01	4 Wire 56Kbps DDS CO SM Unit	8806-1318-01
8806-1304-01	4 Wire 56Kbps DDS Sub SM Unit	8806-1328-01
8806-1319-02	T-1 CO SM Unit	8806-1300-02
8806-1320-02	T-1 Sub SM Unit	8806-1310-02
8806-1341-01	2 Pair HDSL1 ADTRAN Sub Unit	8806-1349-01
8806-1342-01	2 Pair HDSL1 ADTRAN CO Unit	8806-1339-01

* **Note:** Add **PA-24** to part number to include 24V power adapter. Add **PA-48** to part number to include 48V power adapter.

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4-CARD HOUSING

The RLH 4-card housing provides a mounting for up to (4) Fiber Optic Link cards, and is a durable, molded plastic enclosure that may be mounted to a wall.

The Fiber Cards are installed into guide rails and retainer clips, which swing out for easy and convenient access.The hinged door may be secured with the door hasp. The RLH 4-card housing comes complete with mounting hardware and cable management accessories.

The RLH 4-card housing can be ordered with optional copper terminals, gas tube terminals, DC power terminals, ready for your installation.

Part Number	Description	Pre-wired Terminals
8806-1215-01	4-Card Housing	None
8806-1215-01CT	4-Card Housing	6-pair copper terminal
8806-1215-01PT	4-Card Housing	6-pair gas tube terminal
8806-1215-01DC	4-Card Housing	DC Power Terminal

MINI INTERFACE ENCLOSURE

The RLH Mini Interface Enclosure is a fiberglass dielectric cabinet with plywood backboard and vents. It is designed to be rugged enough for outdoor applications, and includes a hinged door with a gasket seal and 2 stainless steel latches with padlock hasps..

The cabinet contains a Fiber Optic Link Card Insert, and a pre-wired copper terminal (66 or binding post). RLH Fiber Optic Link Cards are installed into the guide rails and retainer clips of the card housing., and is available in either 2, 5 or 8 card configurations.

The enclosure can be wall, or pole mounted with the included mounting bracket. The enclosure may be ordered empty,, with just the plywood backboard, or with card housings and telco terminals, including copper terminals, gas tube terminals.

Part Number	Description	Card Housing	Pre-wired Terminals
8806-1402-01	Mini Interface Enclosure	None	None
8806-1400-01	Mini Interface Enclosure	2-Card Interface	6-pair copper terminal
8806-1400-01PT	Mini Interface Enclosure	2-Card Interface	6-pair gas tube protected terminal
8806-1403-01	Mini Interface Enclosure	5-Card Interface	10-pair copper terminal
8806-1403-01PT	Mini Interface Enclosure	5-Card Interface	12-pair gas tube protected terminal
8806-1404-01	Mini Interface Enclosure	8-Card Interface	25-pair copper terminal
8806-1404-01PT	Mini Interface Enclosure	8-Card Interface	25-pair gas tube protected terminal

RLH CARD SHELF HOUSINGS

The RLH card shelves consist of all-dielectric housings with inserts designed for housing Fiber Optic Link cards of any combination. The housings come complete with mounting hardware, fiber cable accessories and fiber slack brackets.

They can be wall mounted with the supplied hardware, or installed in weatherproof cabinets for outdoor installations. Housings may be mounted onto an EIA 19" or 23" rack mount bracket (available separately), or ordered pre-assembled onto rack mount brackets as Rack Mount Units. See the section on **Rack Mount Units** for additional information,

5 Card Shelf Housing

8 Card Shelf Housing

12 Card Shelf Housing

Part Number	Description	Physical Dimensions
8806-1231-02	5 Card Shelf Housing	H7.9in. x W7.9in. x D12in. (201mm x 201mm x 305mm)
8806-1229-01	8 Card Shelf Housing	H7.9in. x W11.8in. x D12in. (201mm x 300mm x 305mm)
8806-1230-02	12 Card Shelf Housing	H7.9in. x W15.7in. x D12in. (201mm x 399mm x 305mm)

* **Note:** Add **-DC** to part number to include DC power terminal option

Card Shelf Housing with Power Supply

RLH card shelves are also available with an integrated power supply that accepts 100-240VAC. The power supply module takes up (2) card positions and are available in 24VDC (2.8A max. output) and 48VDC (1.4A max. output) versions.

AC/DC modules may be used with an optional external battery pack modules to supply temporary power in case of an outage. See the section on **Battery Packs** for additional information.

Shown with 48VDC Power Supply

Part Number	Description	Power Supply
8806-1231-02A24	3-Card Shelf Housing with Power Supply	Integrated 24VDC power supply module
8806-1231-02A48	3-Card Shelf Housing with Power Supply	Integrated 48VDC power supply module
8806-1229-01A24	6-Card Shelf Housing with Power Supply	Integrated 24VDC power supply module
8806-1229-01A48	6-Card Shelf Housing with Power Supply	Integrated 48VDC power supply module
8806-1230-02A24	10-Card Shelf Housing with Power Supply	Integrated 24VDC power supply module
8806-1230-02A48	10-Card Shelf Housing with Power Supply	Integrated 48VDC power supply module

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RLH CARD SHELF RACK MOUNT UNITS

The RLH rack mount units are designed to provide rack mounting of 5, 8 and 12-Card shelf housings in a 5 unit rack space (5RU). Available in EIA 19 inch and 23 inch rack mount configurations, the aluminum rack bracket includes cable openings with rubber grommets on both sides for easy fiber cable and copper wire pass-through.

The rack mount bracket is also available separately, without a Fiber Optic Link housing, to enable the rack mounting of existing RLH Fiber Optic equipment.

Rack mount housings are available with Integrated AC/DC power supplies that accepts 100-240VAC pre-installed into the housing. The power supply module takes up (2) card positions and are available in 24VDC (2.8A max. output) and 48VDC (1.4A max. output) versions. AC/DC modules may be used with an optional external battery pack modules to supply temporary power in case of an outage. See the section on **Battery Packs** for additional information.

5 Card 19" Rack Mount Housing

8 Card 19" Rack Mount Housing

12 Card 19" Rack Mount Housing

Part Number	Description
8806-1420-01	5-Card Shelf 19" Rack Mount Unit
8806-1421-01	8-Card Shelf 19" Rack Mount Unit
8806-1422-01	12-Card Shelf 19" Rack Mount Unit
8806-1430-01	5-Card Shelf 23" Rack Mount Unit
8806-1431-01	8-Card Shelf 23" Rack Mount Unit
8806-1432-01	12-Card Shelf 23" Rack Mount Unit

* **Note:** Add **-DC** to part number to include DC power terminal option

Rack Mount Card Shelf Housing with Power Supply

Part Number	Description	Power Supply
8806-1420-01-A24	3-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1420-01-A48	3-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module
8806-1421-01-A24	6-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1421-01-A48	6-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module
8806-1422-01-A24	10-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1422-01-A48	10-Card Shelf 19" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module
8806-1430-01-A24	3-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1430-01-A48	3-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module
8806-1431-01-A24	6-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1431-01-A48	6-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module
8806-1432-01-A24	10-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 24VDC power supply module
8806-1432-01-A48	10-Card Shelf 23" Rack Mount Unit with Power Supply	Integrated 48VDC power supply module

Rack Mount Brackets

Part Number	Description
8806-1292-02	19 Inch Rack Mount Bracket (5RU EIA Rack Bracket only)
8806-1293-01	23 Inch Rack Mount Bracket (5RU EIA Rack Bracket only)

SLIM LINE RACK MOUNT CARD HOUSING - (1RU)

The RLH slim line rack mount housing is a single space (1RU) unit for use in telco, 2-post relay racks, or standard front rail 19 or 23 inch equipment racks. It is designed to hold two Fiber Optic Links Cards, or one Fiber Optic Link Card with either a 24VDC or 48VDC power adapter. The power adapter can accept either AC (100-240V) or DC (110-330V) input power.

Constructed of 16-gauge steel with a convenient slide-out tray for easy access to equipment from the front panel, the enclosure locks with spring-loaded thumb screws, has a viewing window for cards with status LEDs, and multi-position rack ears for flexible mounting in EIA 19" or 23" equipment, server, or telco racks. Cable management hardware is included.

This rack mount housing is perfect for crowded equipment racks, or where rack space is at a premium.

PHYSICAL DIMENSIONS: (Not including rack ears) H1.75in. xW17in. xD11.5in. (1RU) (44.5mm x 432mm x 292mm)

Slim Line Rack Housing

Slim Line Housing shown with RLH Fiber Optic Link cards

Slim Line Housing with Power Adapter

Part Number	Description	Capacity	Options
8806-1291-01	2-Card Slim Line Rack Mount Housing	2 Fiber Optic Link Cards	None
8806-1295-01	1-Card Slim Line Rack Mount Housing w/24VDC adapter	1 Fiber Optic Link Card	With 24VDC Power Adapter
8806-1295-02	1-Card Slim Line Rack Mount Housing w/48VDC adapter	1 Fiber Optic Link Card	With 48VDC Power Adapter

STANDARD RACK MOUNT CARD HOUSING - (2RU)

The RLH standard rack mount housing is a two space (2RU) rack mount unit for use in telco, 2-post relay racks, or standard front rail EIA 19 or 23 inch equipment racks, and holds up to 4 Fiber Optic Link Cards.

The housing may also be configured with either a 24VDC or 48VDC power adapter. The power adapter can accept either AC(100-240V) or DC (110-330V) power.

Constructed of 16-gauge steel with a convenient slide-out tray for easy access to equipment from the front panel, the enclosure locks with spring-loaded knob screws, has a viewing window for cards with status LEDs, and multi-position rack ears for flexible mounting. Cable management accessories are included.

4 Card Rack Mount Housing - (2RU)

PHYSICAL DIMENSIONS: (Not including rack ears) H3.5in. xW17in. xD11.5in. (2RU) (89mm x 432mm x 292mm)

Part Number	Description	Capacity	Options
8806-1297-01	4-Card Standard 2RU Rack Mount Housing	4 Fiber Optic Link Cards	None
8806-1291-02PA24	1-Card Standard 2RU Rack Mount Housing w/24VDC adapter	2 Fiber Optic Link Cards	With 24VDC Power Adapter
8806-1291-02PA48	1-Card Standard 2RU Rack Mount Housing w/48VDC adapter	2 Fiber Optic Link Cards	With 48VDC Power Adapter

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CABINETS AND PEDESTALS

RLH cabinets and pedestals are a perfect match for Fiber Optic Link housings, and are designed to be used in combination with telco equipment as well. We manufacture and stock a wide variety of sizes and configurations. RLH can also design and manufacture cabinets/enclosures to your specifications for your exact application needs. Our enclosures are also available as pre-wired Telco Interface Units. Visit the **Telco Interface Unit** pages for additional information.

NEMA 4 METAL CABINETS

RLH Aluminum Cabinets provide long-lasting protection for housing electrical components. The aluminum cabinets can be used in both indoor and extreme outdoor environments.

RLH Galvanized Steel Cabinets are manufactured from 16 gauge steel, and are an excellent cost saving alternative to our aluminum cabinet line.

RLH Stainless Steel Cabinets provide the ultimate in durability and strength. These cabinets provide maximum protection for housing any type of equipment. Precision welded from 14 gauge stainless steel, they do not require powder coating, and therefore have a natural stainless steel finish. They are highly resistant to corrosion, and can be used in both indoor and extreme outdoor environments. Please refer to the **Accessories** section for cooling fan and heater accessories.

Standard Features	
Hinged door with:	Hardened Padlock Locking Ring
	Low Profile 1/4 turn latches
	Latching door limit stop
	Document pocket
	Foam gasket seal
Bottom knockouts, from 3/4" to 4"	
Flow-through, water-resistant baffle vents	
9 position ground bar accepts #2 through #14 ground wire	
Treated & painted 3/4" plywood backboard	
Mounting feet and attaching hardware	
Precision welded, heavy duty construction	
Powder coated, RLH light grey (Except Stainless Steel)	

Options
Exhaust fan with thermostat
Heater with thermostat
Ivory or green powder coat
Custom H x W x D (H72"xW72"xD30" max.)
Rack mount rails
Galvanized or Stainless Steel Construction
Pole Mount Bracket

Aluminum Cabinets	Galvanized Steel Cabinets	Stainless Steel Cabinets	External Dimensions (Inches)	Internal Dimensions (Inches)
8806-0011-01	8806-0011-01G	8806-0011-01S	18 x 16 x 10	17.75 x 15.75 x 9.75
8806-0014-01	8806-0014-01G	8806-0014-01S	20 x 16 x 12	19.75 x 15.75 x 11.75
8806-0016-01	8806-0016-01G	8806-0016-01S	24 x 24 x 12	23.75 x 23.75 x 11.75
8806-1281-02*	8806-1281-02G*	8806-1281-02S	24 x 24 x 16	23.75 x 23.75 x 15.75
8806-0020-01	8806-0020-01G	8806-0020-01S	30 x 24 x 16	29.75 x 23.75 x 15.75
8806-0022-01	8806-0022-01G	8806-0022-01S	36 x 24 x 13	35.75 x 2375 x 12.75
8806-0024-01	8806-0024-01G*	8806-0024-01S	36 x 30 x 13	35.75 x 29.75 x 12.75
8806-1296-01*	8806-1296-01G*	8806-1296-01S	40 x 32 x 15	39.75 x 31.75 x 14.75
RLH-483616-A*	RLH-483616-G	RLH-483616-S	48 x 36 x 16	47.75 x 35.75 x 15.75
RLH-603616-A*	RLH-603616-G	RLH-603616-S	60 x 36 x 16	59.75 x 35.75 x 15.75

* Normally Stocked

Part Number	Description	Used On
8806-PMK24	Accessory Pole Mount Bracket for Aluminum Cabinets	Cabinets up to 30" high
8806-PMK30	Accessory Pole Mount Bracket for Aluminum Cabinets	Cabinets over 30" high

RLH TELCO INTERFACE UNITS (METAL CABINETS)

RLH Telco Interface Units provide long-lasting protection for housing electrical components. The NEMA 4 aluminum, galvanized steel or stainless steel units may be used in both indoor and extreme outdoor environments.

RLH Telco Interface Units utilize our standard enclosures, are powder coated light gray (except for the stainless steel versions), and are highly resistant to corrosion. Telco Interface Units are equipped with a hinged door with pad lock latch, literature pocket, and foam gasket seal, knockouts, vents, mounting feet, hardware, and painted plywood backboard with Fiber Optic Link housings and terminals pre-wired, and ready for installation. Models are available with gas tube protection.

The advantage to using RLH Telco Interface Units is that they allow for rapid and uniform field installations.

RLH Metal Cabinet Telco Units

Standard Specifications		
CONSTRUCTION:	Weatherproof, vented, powder coated aluminum alloy, powder coated 16 gauge galvanized steel, or 14 gauge stainless steel with treated and painted plywood backboard.	
PHYSICAL DIMENSIONS:	Standard Sizes:	H24" x W24" x D16"
		H40 x W32" x 15"
MOUNTING STYLE:	Frame or optional pole mount	
INCLUDED:	Mounting hardware and noted housings and terminals	

With 12 Card Housing

With 12 Card Housing

Part Number	Description	Cabinet Size	Pre-wired Terminals
8806-1407-01	5-Card Telco Interface Unit	H24" x W24" x D16"	10-pair copper terminal
8806-1411-01	8-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal
8806-1401-01	12-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal
8806-1407-01PT	5-Card Telco Interface Unit	H24" x W24" x D16"	10-pair copper terminal with gas tube protection
8806-1411-01PT	8-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal with gas tube protection
8806-1401-01PT	12-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal with gas tube protection
8806-1441-01	5-Card Telco Interface Unit	H40" x W32" x D15"	10-pair copper terminal
8806-1442-01	8-Card Telco Interface Unit	H40" x W32" x D15"	25-pair copper terminal
8806-1443-01	12-Card Telco Interface Unit	H40" x W32" x D15"	25-pair copper terminal
8806-1441-01PT	5-Card Telco Interface Unit	H40" x W32" x D15"	10-pair copper terminal with gas tube protection
8806-1442-01PT	8-Card Telco Interface Unit	H40" x W32" x D15"	25-pair copper terminal with gas tube protection
8806-1443-01PT	12-Card Telco Interface Unit	H40" x W32" x D15"	25-pair copper terminal with gas tube protection

* **Note:** Add **G** to part number for Galvanized Steel cabinet, and **S** for Stainless Steel cabinet. Add **NT** to part number for no copper terminal.

Part Number	Description
8806-PMK24	Accessory Pole Mount Bracket- for Telco Units - 24"
8806-PMK30	Accessory Pole Mount Bracket- for Telco Units - 30"

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FIBERGLASS CABINETS

Enclosures

These NEMA-4 enclosures are constructed of dielectric molded fiberglass-reinforced material that is easily tailored on the job site, and may be punched, drilled, filled, or sawed.

The exterior surface is light gray with UV protection. Fiberglass cabinets are equipped with a hinged door with padlock latch, foam gasket seal, vents, mounting feet, hardware, and painted plywood backboard. RLH Fiberglass Enclosures provide long-lasting protection for housing electrical components, and can be used in both indoor and outdoor environments.

Telco Interface Units with FIber Optic Link housings and pre-wired terminal blocks are also available.

Small Fiberglass Enclosure

Standard Fiberglass Housing

Large Fiberglass Housing

Part Number	Cabinet Style	External Dimensions (H x W x D Inches)
RLH-242010-F	Small	24 x 20 x 10
8806-1280-01	Small	24 x 24 x 10
8806-1450-01	Small	30 x 24 x 10
8806-1282-01	Standard	24 x 24 x 13
8806-1283-01	Standard	24 x 24 x 16
8806-1284-02	Standard	30 x 24 x 16
8806-1286-01	Standard	40 x 32 x 13
RLH-363016-F	Large	36 x 30 x 16
RLH-363616-F	Large	36 x 36 x 16
RLH-483616-F	Large	48 x 36 x 16
RLH-603616-F	Large	60 x 36 x 16

* **Note:** Add **PMK** to part number to add pole mount bracket

FIBERGLASS TELCO INTERFACE UNITS

Enclosures

Part Number	Description	Cabinet Size	Pre-wired Terminals
8806-1415-01	5-Card Telco Interface Unit	H24" x W24" x D16"	10-pair copper terminal
8806-1416-01	8-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal
8806-1417-01	12-Card Telco Interface Unit	H24" x W24" x D16"	25-pair copper terminal
8806-1288-01	5-Card Telco Interface Unit	H40" x W32" x D13"	10-pair copper terminal
8806-1294-01	8-Card Telco Interface Unit	H40" x W32" x D13"	25-pair copper terminal
8806-1290-01	12-Card Telco Interface Unit	H40" x W32" x D13"	25-pair copper terminal

* **Note:** Add **PMK** to part number to add pole mount bracket
* **Note:** Add **PT** to part number to substitute a 3-element gas tube protected terminal
* **Note:** Add **NT** to part number for no copper terminal

PEDESTALS (TYPE -02, -03)

RLH Semi-Buried Pedestal enclosures, include plywood backboard, Lockable covers with hex head self-locking system with padlock hasp. The pedestals stands approx. 36" tall when the base is buried. Typically, mounting stakes or platforms are not required for installation.

Type-03 pedestals are larger versions of the popular Type-02 pedestals, with enough room to install a 12-card Fiber Optic Link housing. A pre-wired copper terminal is provided. Pedestals are constructed of all-dielectric plastic with a steel support frame.

Standard Specifications	
CONSTRUCTION:	All-dielectric, forest green molded plastic with metal backboard frame
MOUNTING STYLE:	**Type -02:** Semi-buried, 14" X 16" footprint (approx.), 36" tall (approx.) when buried.
	Type -03: Semi-buried, 18" X 25" footprint (approx.), 36" tall (approx.) when buried.
INCLUDED:	Plywood backboard, pre-wired copper terminal
OPTIONS:	**Type -02:** 2 or 5-card Fiber Optic Link Card housing, Gas Tube Protection.
	Type -03: 2, 5,8 or 12-card Fiber Optic Link Card housing, Gas Tube Protection.

Type-02 Pedestal with cover

Type-02 with 5 Card Shelf

Type-03 Pedestal

Type-03 with 8 Card Shelf

Part Number	Description	Pre-wired Terminals
8806-1285-02	Pedestal (Type -02)	None
8806-1285-03	Pedestal (Type-03)	None

* **Note:** Add **MS** to part number to include 2 ea. 32" mounting stakes

Telco Interface Units

RLH offers standard Fiber Optic Link configurations pre-installed into Type -2 and Type -3 pedestals. These Telco Interface Units allow for faster and more uniform field installations.

Part Number	Description	Pre-wired Terminals
8806-1405-02	Pedestal (Type-02) with 2-card housing	10-pair copper terminal
8806-1409-02	Pedestal (Type-02) with 5-card shelf	10-pair copper terminal
8806-1405-03	Pedestal (Type-03) with 2-card housing	6-pair copper terminal
8806-1404-03	Pedestal (Type-03) with 5-card shelf	10-pair copper terminal
8806-1406-03	Pedestal (Type-03) with 8-card shelf	25-pair copper terminal
8806-1408-03	Pedestal (Type-03) with 12-card shelf	25-pair copper terminal

* **Note:** Add **PT** to part number to substitute a gas tube protected terminal
* **Note:** Add **NT** to part number for no copper terminal
* **Note:** Add **MS** to part number to include 2 ea. 32" mounting stakes

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PEDESTALS (TYPE -06, -07)

RLH Type 06 and 07 Semi-Buried Pedestal enclosures, include treated plywood backboard, Lockable covers with hex head self-locking system and padlock hasp. These pedestals stand approx. 36" tall when the base is buried. Typically, mounting stakes or platforms are not required for installation.

These pedestals have enough room to install a 12-card Fiber Optic Link housing. A pre-wired copper terminal is provided. Pedestals are constructed of all-dielectric plastic with a steel support frame.

Standard Specifications	
CONSTRUCTION:	GR-13 compliant all-dielectric LLDPE molded plastic with treated plywood backboard.
MOUNTING STYLE:	**Type -06:** Semi-buried, 26" X 20" footprint (approx.), 36" tall (approx.) when buried. **Type -07:** Semi-buried, 36" X 24" footprint (approx.), 36" tall (approx.) when buried.
INTERIOR MOUNTING:	**Type -06:** 20-1/2"W x 16-1/4"H x 3/4" treated plywood backboard with 6-3/8" mounting depth on front of backboard, 4-3/4" mounting depth on back. **Type -07:** 28"W x 29"H x 3/4" treated plywood backboard with 7" mounting depth on front of backboard, 8" mounting depth on back.
INCLUDED:	Pre-wired gel filled IDC copper terminal with feedback loop tool, spring lock and padlock hasp, vents, ground lug connections.
OPTIONS:	5, 8 or 12 card Fiber Optic Link housing, 3-element gas tube protection

Type-06 Pedestal with cover

Type-06 with 12 Card Housing

Type-07 Pedestal with cover

Type-07 with 12 Card Housing

Part Number	Description	Pre-wired Terminals
8806-1285-06	Pedestal (Type-06)	None
8806-1285-07	Pedestal (Type-07)	None

* **Note:** Add **MS** to part number to include 2 ea. 32" mounting stakes

Telco Interface Units

RLH offers standard Fiber Optic Link configurations pre-installed into enclosures. These Telco Interface Units allow for faster and more uniform field installations.

Part Number	Description	Pre-wired Terminals
8806-1409-06	Pedestal (Type-06) with 5-card shelf	25-pair copper terminal
8806-1406-06	Pedestal (Type-06) with 8-card shelf	25-pair copper terminal
8806-1408-06	Pedestal (Type-06) with 12-card shelf	25-pair copper terminal
8806-1409-07	Pedestal (Type-07) with 5-card shelf	25-pair copper terminal
8806-1406-07	Pedestal (Type-07) with 8-card shelf	25-pair copper terminal
8806-1408-07	Pedestal (Type-07) with 12-card shelf	25-pair copper terminal

* **Note:** Add **PT** to part number to substitute a gas tube protected terminal

* **Note:** Add **MS** to part number to include 2 ea. 32" mounting stakes

HI-DENSITY PEDESTAL

Enclosures

Hi-Density Pedestal enclosures offer a convenient solution for a Fiber Optic Link CO Side location with high circuit count. The Hi-Density Pedestals are constructed of 12-14 gauge steel and are vented.

The Pedestals can be ordered with optional mounting base and pad. The RLH pedestal mounting base provides added stability and expanded cable storage for the RLH Hi-Density Pedestal. The mounting base can be installed alone or with the polymer pad. The RLH Pedestal Mounting Pad provides a secure mounting foundation for Hi-Density Pedestal enclosures. Mounting hardware is included with the pad.

Standard Specifications	
CONSTRUCTION:	12-14 gauge steel with treated 3/4" plywood backboard I, hex head and hasp lockable
MOUNTING STYLE:	Pad or semi-buried
INCLUDED:	Plywood backboard, pre-wired copper terminal
OPTIONS:	12-card Fiber Optic Link shelf, Gas Tube Protection, Pedestal Mounting Base, Mounting Pad with Base

Pedestal with cover

Mounting Base

Polymer Pad

Part Number	Description	Size	Pre-wired Terminals
8806-1410-01	Hi-density pedestal	H50" x W30" x D18"	N/A
8806-1440-01	Hi-density pedestal	H50" x W30" x D28"	N/A

Pads and mounting bases

Part Number	Description	Size	Application
RLH-PMB-01	Pedestal mounting base	N/A	For use with 18" deep pedestal enclosures only
RLH-PAD3436	Pedestal pad with base	34" x 36"	Polymer pad with base for 18" deep pedestals only
RLH-PAD4854	Pedestal pad with base	48" x 54"	Polymer pad with base for 28" deep pedestals only

Telco Interface Units

RLH Hi-Density Pedestal Telco Interface Units include RLH card housings and terminals pre-wired for rapid installation.

Part Number	Description	Size	Pre-wired Terminals
8806-1412-01	12-card hi-density pedestal	H50" x W30" x D18"	25-pair copper terminal
8806-1412-01PT	12-card hi-density pedestal	H50" x W30" x D18"	25-pair copper terminal with gas tube protection
8806-1444-01	12-card hi-density pedestal	H50" x W30" x D28"	25-pair copper terminal
8806-1444-01PT	12-card hi-density pedestal	H50" x W30" x D28"	25-pair copper terminal with gas tube protection
8806-1445-01	24-card hi-density pedestal	H50" x W30" x D28"	50-pair copper terminal
8806-1446-01	36-card hi-density pedestal	H50" x W30" x D28"	100-pair copper terminal

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TURN-KEY TELCO UNITS

Turn-key Telco and Fiber Unit solutions are now available and offer a fast and convenient way to set up a fiber optic Link / Telco Demarc system outside the ZOI or at the CFJ. Systems include RLH Card Shelf pre-wired to a terminal, terminal test lead, 25 pair gas tube protected terminal and 8 or 14 card NIU Housing. Turn-key Telco Unit are installed into an RLH Type-03/07 pedestals, galvanized or fiberglass cabinets. Contact us for other configurations available through our factory modification program.

Turn-key Telco Unit Type-07 RLH Side

Turn-key Telco Unit Type-07 Customer Side

Turn-key Telco Unit, Flberglass Cabinet

Pedestal Turn-key Telco Units

Part Number	Description	Pedestal
8806-1409-03TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Type-03
8806-1406-03TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Type-03
8806-1409-07TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Type-07
8806-1406-07TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Type-07
8806-1408-07TT	Turn-key Telco Unit with 12 card shelf, terminal, test lead, 25 pair protected terminal, 14 Card NIU Housing	Type-07

* **Note:** Add **MS** to part number to include 2 ea. 32" mounting stakes

Cabinet Turn-key Telco Units

Part Number	Description	Cabinet
363013G-051TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Galvanized Steel H36xW30xD13
363013G-081TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Galvanized Steel H36xW30xD13
363013G-121TT	Turn-key Telco Unit with 12 card shelf, terminal, test lead, 25 pair protected terminal, 14 Card NIU Housing	Galvanized Steel H36xW30xD13
403215G-051TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Galvanized Steel H40xW32xD15
403215G-081TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Galvanized Steel H40xW32xD15
403215G-121TT	Turn-key Telco Unit with 12 card shelf, terminal, test lead, 25 pair protected terminal, 14 Card NIU Housing	Galvanized Steel H40xW32xD15
302413F-051TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Fiberglass H30xW24xD13
302413F-081TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Fiberglass H30xW24xD13
403213F-051TT	Turn-key Telco Unit with 5 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Fiberglass H40xW32xD13
403213F-081TT	Turn-key Telco Unit with 8 card shelf, terminal, test lead, 25 pair protected terminal, 8 Card NIU Housing	Fiberglass H40xW32xD13
403213F-121TT	Turn-key Telco Unit with 12 card shelf, terminal, test lead, 25 pair protected terminal, 14 Card NIU Housing	Fiberglass H40xW32xD13

POWER SUPPLIES

RLH manufactures power supplies, converters, solar and battery backup systems to meet a variety of telco and communications industry applications.

From our amazing Power Over Fiber system, which transmits electrical power over non-conductive, all dielectric fiber, to complete stand alone, solar power systems for powering telco equipment where local power isn't available.

For rack mount applications, we manufacture slim, single space DC/DC converters and power supplies with front panel controls and status indicators, as well as larger battery packs and high density power supplies for powering multiple devices.

We also have a full range of wall and DIN rail mounts mounted units for indoor or cabinet installation, With a wide variety of power supplies and converters to choose from, RLH can supply the right power equipment to fit your needs.

POWER OVER FIBER

The RLH Fiber Optic Link Power Over Fiber (PoF) system provides power transmission over three multimode optical fibers. It is designed to provide true isolated power to a Fiber Optic Link CO side card when line sealing current or local AC power is not available..

The PoF system comprises 2 units; a Transmitter Unit to produce the light energy, and a Receiver Unit to convert that energy into DC power that can run a full spectrum of RLH Fiber Optic Links.

Standard Features
Provides true isolated power
Self monitoring
Delivers constant power
Eliminates copper wire running into a high GPR zone
Utilizes standard ST connectors and 62.5/125µm multimode fiber
Receiver unit is compatible with wide variety of housings

The PoF Transmitter unit is a self contained housing that may be 19/23" rack or wall mounted and measures H3.5"xW13"xD11". It operates from a 24- 56 VDC power source, and LED and LCD indicators located on the front panel report system status and operation. The PoF Receiver unit is a standard RLH single card form factor (7"x4"x1") unit, and may be installed into any RLH Fiber Optic Link card housing. The receiver has two fiber ST photovoltaic power receivers (PPC) that convert the laser light into electrical energy, and a single fiber ST transmitter for monitoring and safety shutoffs in the event of a break in fiber continuity.

Transmitter Unit

Receiver Unit

Part Number	Description	Configuration
8806-1600-01	Power Over Fiber Laser Transmitter Unit	Power Required: **Local 24-56VDC @ 2A maximum (45 Watts) Power Source**
		Fiber Type: **Multimode, 62.5/125µm**
		Connector Style: **ST**
8805-1610-01	Power Over Fiber Receiver Unit	Power Output: **24VDC @ 25mA maximum (0.6 Watts)**
		Fiber Type: **Multimode, 62.5/125µm**
		Connector Style: **ST**

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AC/DC LOW DENSITY POWER SUPPLY - 24V

Power Supplies

AC/DC Low-Density power supplies are ideal for industrial telecom applications where uninterruptible power is necessary. The power supply operates from a standard AC input and transforms to a 24VDC output. Internal batteries offer a minimum of 2 hours of standby power in the event of an outage. Batteries are field replaceable.

The Low-Density power supply has front door status indicators, 4 output connections and is wall mountable.

24V AC/DC Power Supply

Internal Components

Standard Specifications	
CONSTRUCTION:	Thermoplastic molded
DIMENSIONS:	(With door closed) 10in. x W8.5in. x D3.25in. (254mm x 216mm x 83mm)
MOUNTING STYLE:	Wall mount
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	AC Input Voltage	DC Output Voltage	Output Current	Battery Backup	Replacement Battery
8806-1203-04	115	24	0.73A	1.2AH	8806-1205-03
8806-1203-04NB	115	24	0.73A	N/A	N/A

AC/DC LOW DENSITY POWER SUPPLY - 48V

Power Supplies

AC/DC Low-Density power supplies are ideal for industrial telecom applications where uninterruptible power is necessary.

The power supply operates from a standard AC input and transforms to a 48VDC output. Internal batteries offer a minimum of 2 hours of standby power. Batteries are field replaceable.

The Low-Density power supply has front door status indicators, 4 output connections and is wall mountable.

48V AC/DC Power Supply

Standard Specifications	
CONSTRUCTION:	Thermoplastic molded
DIMENSIONS:	(With door closed) 16.7in. x W11.7in. x D4.7in. (424mm x 297mm x 119mm)
MOUNTING STYLE:	Wall mount
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	AC Input Voltage	DC Output Voltage	Output Current	Battery Backup	Replacement Battery
8806-1204-01	115	48	0.73A	1.2AH	8806-1205-03 (Qty. 2)
8806-1204-01NB	115	48	0.73A	N/A	N/A

AC/DC HIGH DENSITY POWER SUPPLY - 24V

Power Supplies

The AC/DC 24V High Density power supply operates from a standard AC input and transforms to a 24VDC output. An external battery pack offers a minimum of 3 hours of standby power.

The batteries inside the battery pack housing are field replaceable without removing the housing from its mounting point. The High-Density 24V power supply has front door status indicators, 12 output connections, and is wall mountable. The power supply can be ordered with an E&M alarm out put to remotely monitor the loss of AC power.

AC/DC Power Supply

Battery pack

Standard Specifications	
CONSTRUCTION:	Thermoplastic molded
DIMENSIONS:	(With door closed) 10in. x W8.5in. x D3.25in. (254mm x 216mm x 83mm)
EXTERNAL 24V BATTERY PACK DIMENSIONS:	**7AH battery:** H8in. x W8in. x D4in. (203mm x 203mm x 102mm) **20AH battery:** H8in. x W8in. x D7in. (204mm x 203mm x 178mm)
MOUNTING STYLE:	Wall mount
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Power Supply Part Number	AC Input Voltage	DC Output Voltage	Output Current	Power Alarm	Battery Backup	Battery Pack	Replacement Battery
8806-1206-03	115	24	2.1A	N/A	7AH	8806-1206-03BB	8806-1207-03
8806-1206-03NB	115	24	2.1A	N/A	N/A	N/A	N/A
8806-1206-03AP	115	24	2.1A	E&M ALARM	7AH	8806-1206-03BB	8806-1207-03
8806-1206-03-20AH	115	24	2.1A	N/A	20AH	8806-1250-06BB	8806-1250-06RB

AC/DC HIGH DENSITY POWER SUPPLY - 48V

Power Supplies

The AC/DC 48V High Density power supply operates from a standard AC input and transforms to a 48VDC output.

An external battery pack offers a minimum of 3 hours of standby power. The batteries inside the battery pack housing are field replaceable, so that the housing does not need to be removed from its mounting point to change batteries.

The High-Density 48V power supply has front door status indicators, 12 output connections, and is wall mountable.

48V AC/DC Power Supply

Battery Pack

Standard Specifications	
CONSTRUCTION:	Thermoplastic molded
DIMENSIONS:	**Housing**: (With door closed) H15.25in. x W11.5in. x D3.75in. (387mm x 292mm x 95mm)
	Battery Pack: H11.3in. x W9.3in. x D5.4in. (287mm x 236mm x 137mm)
MOUNTING STYLE:	Wall mount
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	AC Input Voltage	DC Output Voltage	Output Current	Battery Backup	Replacement Battery
8806-1214-01	115	48	2.1A	7.2AH	8806-1214-01RB
8806-1204-01NB	115	48	2.1A	N/A	N/A

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AC/DC LOW DENSITY RACK MOUNT POWER SUPPLY

Front Panel

Rear Panel

AC/DC Low-Density power supplies are ideal for industrial telecom applications where isolated uninterruptible power is necessary. The slim housing requires only a single rack mount space (1RU), and is perfect for tight installations where space is at a premium. The power supply operates from a standard AC input and transforms to a DC output. Internal batteries offer a minimum of 3 hours of standby power. The power supply is available in 12VDC, 24VDC and 48VDC models, with or without backup batteries, has convenient front panel LED status indicators, 4 output connections on the rear panel, and comes with mounting hardware and universal rack ears for standard EIA 19' or 23'' rack mounting.

Standard Specifications	
CONSTRUCTION:	Aluminum Alloy, powder coated
PHYSICAL DIMENSIONS:	H1.75in.xW19in.xD11.75in. (Standard EIA 19"/23" rack mount 1RU) (44.5mm x 483mm x 299mm)
MOUNTING STYLE:	Standard EIA 19" or 23'' rack mount (attaching hardware included)
CONNECTIONS:	Rear panel DC+ and DC- screw type terminals, grounded AC power cord (Supplied)
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	AC Input Voltage	DC Output Voltage	Output Current	Battery Backup	Replacement Battery
8806-1413-01	115V	24V	0.73A	2.2AH	8806-1413-01RB
8806-1413-01NB	115V	24V	0.73A	N/A	N/A
8806-1414-01	115V	48V	0.73A	2.2AH	8806-1413-01RB (Qty. 2)
8806-1414-01NB	115V	48V	0.73A	N/A	N/A
8806-1484-01	115V	12V	2.0A	4.4AH	8806-1413-01RB
8806-1484-01NB	115V	12V	2.0A	N/A	N/A

AC/DC HIGH DENSITY RACK MOUNT POWER SUPPLY

Front Panel

Rear Panel

The AC/DC High-Density rack mount power supply operates from a standard AC input and transforms to a DC output, and can be ordered with or without backup batteries. Backup batteries offer a minimum of 3 hours of standby power. The batteries are automatically charged and maintained at optimum capacity. The High-Density Power supply comes standard with 12 output connections. It is available in either 12VDC, 24VDC or 48VDC output versions, has convenient front panel LED status indicators, 12 output connections on the rear panel, and comes with mounting hardware and universal rack ears for standard EIA 19' or 23'' rack mounting.

Standard Specifications	
CONSTRUCTION:	Aluminum Alloy, powder coated
PHYSICAL DIMENSIONS:	H3.5in.xW19in.xD11.5in. (Standard EIA 19"/23" rack mount 2RU) (88.9mm x 483mm x 292mm)
MOUNTING STYLE:	Standard EIA 19" or 23'' rack mount (attaching hardware included)
CONNECTIONS:	Rear panel: 12 DC+ and DC- screw type terminals, grounded AC power cord (Supplied)
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	AC Input Voltage	DC Output Voltage	Output Current	Battery Backup	Replacement Battery
8806-1418-01	115V (100-240V)	24V	2.8A	7.2AH	8806-1413-01RB
8806-1418-01NB	115V (100-240V)	24V	2.8A	N/A	N/A
8806-1419-01	115V (100-240V)	48V	1.4A	4.5AH	8806-1419-01RB
8806-1419-01NB	115V (100-240V)	48V	1.4A	N/A	N/A
8806-1485-01	115V (100-240V)	12V	5.6A	14.4AH	8806-1413-01RB
8806-1485-01NB	115V (100-240V)	12V	5.6A	N/A	N/A

DC/DC CONVERTERS

RLH manufactures a complete line of DC/DC converters for industrial telecom applications. These converters provide an isolated and regulated DC output from station batteries or other widely fluctuating DC sources.

DC converters are available in both wall mount and standard 1RU rack mount configurations, and a single slot card version for use in any RLH Card Shelf or housing.

RLH DC/DC converters can provide multiple outputs for powering for up to twelve (12) Fiber Optic Link Cards.

WALL MOUNT DC/DC CONVERTERS

DC/DC wall mount converters for industrial telecom applications. These converters provide an isolated and regulated DC output from station batteries or other widely fluctuating DC sources. A range of input voltages are available.

RLH DC/DC converters can provide multiple outputs for powering for up to twelve (12) Fiber Optic Link Cards.

DC/DC Converter

Internal Components

Standard Specifications	
CONSTRUCTION:	Thermoplastic molded
DIMENSIONS:	(With door closed) 10in. x W8.5in. x D3.25in. (254mm x 216mm x 83mm)
MOUNTING STYLE:	Wall mount
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)

Part Number	DC Input Voltage	DC Output Voltage	Max Output Current
8806-1257-01	12V (10-20V)	24V	2.2A
8806-1258-01	12V (10-20V)	48V	1.1A
8806-1255-01	24V (21-32V)	12V	6.0A
8806-1256-01	24V (21-32V)	24V	2.2A
8806-1266-01	24V (21-32V)	48V	1.1A
8806-1269-02	48V (42-60V)	12V	6.0A
8806-1278-02	48V (42-60V)	24V	2.2A
8806-1267-01	48V (42-60V)	48V	1.5A
8806-1259-01	130V (100-180V)	12V	6.0A
8806-1275-02	130V (100-180V)	24V	2.2A
8806-1276-01	130V (100-180V)	48V	1.1A

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DC/DC CONVERTER CARD

Power Supplies

The RLH DC/DC Converter card provides an isolated 24VDC or 48VDC output designed to power up to 12 Fiber Optic Link cards. Engineered for industrial telecom applications, these converters provide an isolated and regulated DC output from station batteries or other widely fluctuating DC sources. The RLH DC/DC Converter cards are designed to fit into any RLH Fiber Optic Link card housing or shelf, and can be combined with additional converters for a high density DC power solution.

The RLH DC/DC converter cards are fuse protected and have LED status indicators mounted on the card.

DC/DC Converter Card

Shown Mounted in Housing

Standard Specifications	
DIMENSIONS:	7in. x 4in. x 1in. (177.8mm x 101.6mm x 25.4mm) (Standard RLH Single Slot Fiber Card Form Factor)
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)
MAX OUTPUT:	50W

Part Number	DC Input Voltage	DC Output Voltage	Max Output Current
8806-1266-02NH	24V	48V	1.1A
8806-1278-02NH	48V	24V	2.2A
8806-1276-02NH	130V	48V	1.1A
8806-1275-02NH	130V	24V	2.2A

RACK MOUNT DC/DC CONVERTERS - (1RU)

Power Supplies

DC/DC rack mount converters are ideal for industrial telecom applications. These converters provide an isolated and regulated DC output from station batteries or other widely fluctuating DC sources. A range of input and output voltages are available. The RLH DC/DC Converters require only 1RU of space, and are ideal where rack space is at a premium. The unit comes with mounting hardware and universal rack ears for standard EIA 19' or 23" rack mounting.

Front view

Rear connectors

The RLH DC/DC rack mount converters can provide multiple outputs for powering for up to twelve (12) Fiber Optic Link Cards, and has has convenient front panel LED status indicators for instant front panel monitoring.

Standard Specifications	
CONSTRUCTION:	Powder coated 16-gauge steel
PHYSICAL DIMENSIONS:	(Not including Rack Ears) H 1.75 x W 17.75 x D 11.75 (H 44.5mm x W 450.9mm x D 298.5mm)
MOUNTING STYLE:	Standard EIA 19 or 23 inch rack mount, 2RU
INCLUDED:	Mounting hardware and cable management accessories.
OPERATING TEMPERATURE:	-40°C to 70°C (-40°F to 158°F)

Part Number	DC Input Voltage	DC Output Voltage	Max Output Current
8806-1457-01	12V (10-20V)	24V	2.2A
8806-1458-01	12V (10-20V)	48V	1.1A
8806-1455-01	24V (21-32V)	12V	6.0A
8806-1456-01	24V (21-32V)	24V	2.2A
8806-1466-01	24V (21-32V)	48V	1.1A
8806-1460-01	48V (42-60V)	12V	6.0A
8806-1478-01	48V (42-60V)	24V	2.2A
8806-1467-01	48V (42-60V)	48V	1.1A
8806-1450-01	130V (100-180V)	12V	6.0A
8806-1475-01	130V (100-180V)	24V	2.2A
8806-1476-01	130V (100-180V)	48V	1.1A

DIN RAIL MOUNT SWITCHING POWER SUPPLIES

RLH AC/DC DIN rail mount power supplies are compact switching supplies designed to convert AC or DC power (110/240VAC, 120~330VDC) to regulated DC power for a wide range of industrial equipment.

They have the advantage of being DIN rail or wall-mounted, are available with 5, 12, 24 and 48VDC output (depending on the model). They range in power from 45W to 500W, and from 1 to 20 Amps. They include a power good signal indicator, feature flexible AC or DC input, and have low output ripple along with short circuit, overvoltage and overload protection.

75W DIN Power Supply

500W DIN Power Supply

The constant-current, short-circuit protection limits the output current as the voltage is reduced, to safely protect the control components from direct shorts and device failures.

Standard Specifications	
CONSTRUCTION:	Powder coated steel
MOUNTING STYLE:	DIN rail TS-35/7.5 or 15 mountable
INCLUDED:	DIN rail section and mounting hardware
OPERATING TEMPERATURE:	-20° to +70°C (-4°F to +158°F)

Part Number	Rating	Input	Output
RLH-D-ACDC-45-5-01	45W	110-240AC/120-330VDC	5VDC/5A
RLH-D-ACDC-45-12-01	45W	110-240AC/120-330VDC	12VDC/3A
RLH-D-ACDC-45-24-01	45W	110-240AC/120-330VDC	24VDC/2A
RLH-D-ACDC-45-48-01	45W	110-240AC/120-330VDC	48VDC/1A
RLH-D-ACDC-75-5-01	75W	110-240AC/120-330VDC	5VDC/8A
RLH-D-ACDC-75-12-01	75W	110-240AC/120-330VDC	12VDC/6A
RLH-D-ACDC-75-24-01	75W	110-240AC/120-330VDC	24VDC/4A
RLH-D-ACDC-75-48-01	75W	110-240AC/120-330VDC	48VDC/1.5A
RLH-D-ACDC-120-12-01	120W	110-240AC/250-350VDC	12VDC/10A
RLH-D-ACDC-120-24-01	120W	110-240AC/250-350VDC	24VDC/5A
RLH-D-ACDC-120-48-01	120W	110-240AC/250-350VDC	48VDC/2.5A
RLH-D-ACDC-240-24-01	240W	110-240AC/120-330VDC	24VDC/10A
RLH-D-ACDC-240-48-01	240W	110-240AC/120-330VDC	48VDC/5A
RLH-D-ACDC-500-24-01	500W	110-240AC/120-330VDC	24VDC/20A
RLH-D-ACDC-500-48-01	500W	110-240AC/120-330VDC	48VDC/10A

DIN RAIL SWITCHING POWER SUPPLIES WITH DIGITAL READOUT

RLH DIN AC/DC DIN rail power supplies with Digital Readout are feature-rich, compact switching supplies with comprehensive status displays and relay ready connections built-in. Available in 4 different power ratings from 75W to 500W, with 24VDC output, to power a wide range of industrial equipment.

Digital LED displays voltage, current, peak current, temperature, up time and total running time.

They are DIN rail or wall-mountable, have adjustable DC voltage outputs, and feature low output ripple along with short circuit, overvoltage and overload protection.

Part Number	Rating	Input	Output
RLH-D-ACDC-D75-24-01	75W	100-260AC/130-370VDC	5VDC/5A
RLH-D-ACDC-D120-24-01	120W	100-260AC/130-370VDC	24VDC/5A
RLH-D-ACDC-D240-24-01	240W	100-260AC/130-370VDC	24VDC/10A
RLH-D-ACDC-D500-24-01	500W	100-260AC/130-370VDC	24VDC/20A

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email: info@fiberopticlink.com • www.fiberopticlink.com

DIN RAIL MOUNT AC/DC UPS SYSTEMS

RLH 45W AC/DC DIN rail mount power supplies with battery backup are complete turnkey uninterruptible power supply (UPS) systems. They include a compact switching power supply and a battery charge controller that switches to battery backup power in the event of a power outage.

75W DIN Power Supply

24VDC Charge Controller

4AH Battery Pack

The switching power supply is designed to convert AC or DC power (110/240VAC, 120~330VDC) to uninterruptible DC power for a wide range of industrial equipment. It includes a power good signal indicator, and has low output ripple along with short circuit, overvoltage and overload protection.

The charge controller continuously maintains the correct charge level on the battery and ensures a seamless power transition to battery power when needed for a complete UPS power supply solution.

The included battery pack is wall mountable and contains sealed batteries that are field replaceable. The battery pack has a convenient screw terminal for wiring, and an external replaceable fuse for protection.

Part Number	Power Supply	Input	Output	Backup Battery
RLH-D-ACDC-45-24-BU-01	45W	110-240AC/120-330VDC	24VDC/2A	4.5AH
RLH-D-ACDC-75-24-BU-01	75W	110-240AC/120-330VDC	24VDC/3A	4.5AH
RLH-D-ACDC-120-24-BU-01	120W	110-240AC/120-330VDC	24VDC/5A	12AH
RLH-D-ACDC-240-24-BU-01	240W	110-240AC/120-330VDC	24VDC/10A	12AH
RLH-D-ACDC-240-24-BU-02	240W	110-240AC/120-330VDC	24VDC/10A	20AH
RLH-D-ACDC-500-24-BU-01	500W	100-260AC/130-370VDC	24VDC/20A	20AH

DIN RAIL MOUNT 24VDC UPS CHARGE CONTROLLER

RLH 24VDC DIN rail mount charge controllers are compact units designed to work with a DC power supply (such as the RLH DIN rail power supplies) and a backup battery to provide uninterruptible power in the event of a power outage.

The charge controller continuously maintains the correct charge level on the battery and ensures a seamless power transition to battery power when needed for a complete UPS power supply solution.

Part Number	Input	Output Charge Current
RLH-UPS-24-40-01	24VDC / 40A Max.	2A

2 WIRE/4WIRE DATA POWER COUPLER

Power Supplies

The 2-Wire/4-Wire Power Coupler inserts DC power onto "dry" pairs used in SCADA service and Audio Tone Protective Relaying lines in order to power (1 or 2) 2-Wire Data CO Cards or (1) 4-Wire Data CO Card via a 24-56 VDC power supply.

Data Power Coupler Card

Standard Specifications	
DIMENSIONS:	7in. x 4in. x 1in. (177.8mm x 101.6mm x 25.4mm) (Standard RLH Single Slot Fiber Card Form Factor)
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)
OPERATING HUMIDITY::	90% non-condensing

Part Number	Description
8806-1251-02	2-Wire/4-Wire Data Power Coupler

2 WIRE POTS POWER COUPLER

Power Supplies

The 2 Wire POTS Power Coupler uses a local 24 or 48VDC supply to power (1) Fiber Optic Link 2-Wire POTS CO card while isolating the 2-Wire line from the supply. This is used in cases when line power is insufficient for fiber card to operate.

POTS Power Coupler Card

Standard Specifications	
DIMENSIONS:	7in. x 4in. x 1in. (177.8mm x 101.6mm x 25.4mm) (Standard RLH Single Slot Fiber Card Form Factor)
OPERATING TEMPERATURE:	-40C to +70C (-40F to +158F)
OPERATING HUMIDITY::	90% non-condensing

Part Number	Description	DC Voltage Input
8806-1252-01	2 Wire POTS Coupler	24VDC
8806-1252-02	2 Wire POTS Coupler	48VDC

LINE POWERED DC SUPPLY

Power Supplies

The RLH line powered DC supply provides a remote power source over twisted pair for outside plant telecom equipment application such as: Wi-Fi access points, FTTX, Remote Telco DSLAM, etc. The power supply accepts up to 8 input telephone pairs each with 125-380VDC. 12, 24, and 48 VDC output models are available.*

The housing is a weatherproof plastic enclosure that may be mounted to a wall or pole. The hinged door closes securely with 2 snap latches, and may be secured with the 3/8" hex bolt.

*Also available in a rack mount configuration.

Line Powered DC Supply

Internal Configuration

Part Number	Description	Input	Output
8806-1576-01	Line Powered DC Supply	125-380VDC	48VDC, 1A
8806-1575-01	Line Powered DC Supply	125-380VDC	24VDC, 2A
8806-1559-01	Line Powered DC Supply	125-380VDC	12VDC, 4A
RLH-PMK-02	Accessory Pole Mount	**Note:** Add -PMK to the part number to include the Pole Mount at time of order	

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SOLAR POWER SUPPLIES

RLH Industries manufactures fully integrated turn-key solar power supply systems designed to support a wide variety of remote power applications..

Standard RLH solar power supplies offer 5 to 10 days of back-up battery power and consist of enclosures and mounting brackets that are built from heavy-gauge materials for long life and superior corrosion resistance. RLH engineers are available to design custom configurations for telecommunications, telemetry, cellular, or traffic applications.

Solar Panel

Battery pack

Fiberglass mounting pole

20W SOLAR PANEL WITH 12AH BATTERY

Power Supplies

System includes 20W 24VDC solar panel with 12AH regulated battery and charge controller, recommended 60mA (1.5W) max load. Heavy duty construction for long life. Mounting hardware is included. Standard options include outdoor-rated weatherproof battery pack, and low battery alarm. A fiberglass mounting pole is also available. See **Fiberglass Mounting Pole** in the **Accessories** section for more information.

Part Number	Description
8806-1250-03B	20W 24VDC Solar Panel Power Supply
8806-1250-03BO	20W 24VDC Solar Panel Power Supply with weatherproof battery pack
8806-1250-03LBA	20W 24VDC Solar Panel Power Supply with Low Battery Alarm
8806-1250-03BRB	Replacement 12AH 24VDC Batteries for Battery Pack

40W SOLAR PANEL WITH 20AH BATTERY

Power Supplies

System includes 40W 24VDC solar panel with 20AH regulated battery pack and charge controller, recommended 120mA, 3W maximum load. Heavy duty construction for long life. Mounting brackets and hardware are included. Standard options include outdoor-rated weatherproof battery pack, and low battery alarm. A fiberglass mounting pole is also available. See **Fiberglass Mounting Pole** in the **Accessories** section for more information.

Part Number	Description
8806-1250-06	40W 24VDC Solar Panel Power Supply
8806-1250-06LBA	40W 24VDC Solar Panel Power Supply with Low Battery Alarm
8806-1250-06RB	Replacement 20AH 24VDC Batteries for Battery Pack

100W SOLAR PANEL WITH 50AH BATTERY

Power Supplies

System includes 100W 24VDC solar panel with 52AH regulated battery pack and charge controller, recommended 300mA (7W) maximum load. Heavy duty construction for long life. Mounting brackets and hardware are included.

Part Number	Description
8806-1250-04	100W 24VDC Solar Panel Power Supply
8806-1250-04LBA	100W 24VDC Solar Panel Power Supply with Low Battery Alarm
8806-1250-04RB	Replacement 52AH 24VDC Batteries for Battery Pack

Call our product specialists for custom solar assemblies

150W SOLAR PANEL WITH 50AH BATTERY

Power Supplies

System includes 150W 24VDC solar panel with 72AH regulated battery pack and charge controller, recommended 450mA (11W) maximum load. Heavy duty construction for long life. Mounting brackets and hardware are included.

Part Number	Description
8806-1250-01	150W 24VDC Solar Panel Power Supply
8806-1250-01LBA	150W 24VDC Solar Panel Power Supply with Low Battery Alarm
8806-1250-01EM	150W 24VDC Solar Panel Power Supply with E&M alarm
8806-1250-01RB	Replacement 75AH 24VDC Batteries for Battery Pack

Call our product specialists for custom configurations

FIBERGLASS MOUNTING POLE

Power Supplies

Part Number	Description
RLH-DPOLE-14	RLH Fiberglass Pole - 14' (NOTE: For use with 20W and 40W solar panels only)

BATTERY PACKS

Power Supplies

RLH Battery Packs are designed to supply temporary power to Fiber Optic Link cards in the event of a power outage.

Wall mount battery packs may be used with any wall, shelf or DIN mount power supply with battery backup capability.

Includes wire terminals, external fuse and mounting hardware.

24V 7.2AH

48V 1.2AH

48V 7.2AH

Part Number	Description	Dimensions	Output	Fuse Rating
8806-1205-01BB	24V Wall Mount Battery Pack	H4.75" x W9.5" x D4"	24VDC 4.5AH	6A
8806-1205-01RB	24V 4.5AH Replacement Batteries (Set)	N/A	N/A	N/A
8806-1206-03BB	24V Wall Mount Battery Pack	H8" x W8" x D4"	24VDC 7AH	6A
8806-1207-03	24V 7AH Replacement Batteries (Set)	N/A	N/A	N/A
8806-1207-06BB	24V Wall Mount Battery Pack	H11.3" x W9.3" x D5.4"		6A
8806-1207-06RB	24V 12AH Replacement Batteries (Set)	N/A	N/A	N/A
8806-1250-06BB	24V Wall Mount Battery Pack	H8" x W8" x D7"		6A
8806-1250-06RB	24V 20AH Replacement Batteries (Set)	N/A	N/A	N/A
8806-1204-01BB	48V Low Density Wall Mount Battery Pack	H4.75" x W9.5" x D4"	48VDC 1.2AH	3A
8806-1204-01RB	48V 1.2AH Replacement Batteries (Set)	N/A	N/A	N/A
8806-1214-01BB	48V High Density Wall Mount Battery Pack	H11.3" x W9.3" x D5.4"	48VDC 7.2AH	6A
8806-1214-01RB	48V 7.2AH Replacement Batteries (Set)	N/A	N/A	N/A

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FIBER OPTIC CABLE

RLH carries an expanded variety of fiber optic cables available for both indoor and outside plant applications, offering the highest quality cable from several of the industries leading manufacturers. Fiber cable can be ordered in large reels or small cut piece quantities, and are available with factory installed connectors. Contact an RLH sales office for fiber cable types not listed, such as armored, double jacket, figure-8, and hybrid cables.

DISTRIBUTION CABLE (INDOOR)

Fiber Optic Cable

Distribution fiber cable is a compact tight buffered cable which contains no gel. Each fiber strand has a color coded 900-micron jacket. The cable outer jacket is also color coded for singlemode (yellow) or multimode (orange) type fiber. Riser (OFNR) and Plenum (OFNP) rated cables are available.

For installation into a patch or distribution panel connectors can be installed directly onto the 900-micron fiber. When the cable is connecting directly into the end device a 2 or 3mm breakout kit is recommended.

TIGHT BUFFER CABLE AND LOOSE TUBE (INDOOR/OUTDOOR)

Fiber Optic Cable

Indoor/Outdoor fiber cable allows for installation flexibility by providing outside plant ruggedness and UV protection, while maintaining fire ratings for indoor use.

Tight buffer indoor/outdoor cables are available in both Riser (OFNR) and Plenum (OFNP) rating.

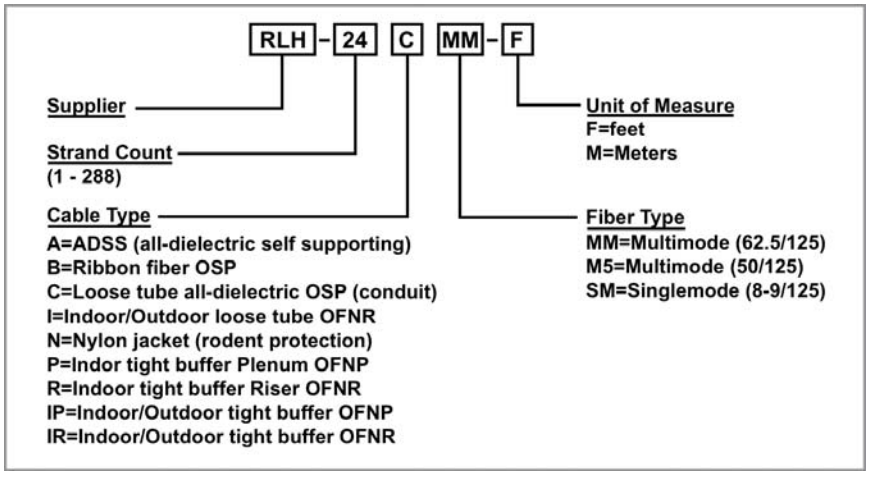
LOOSE TUBE - ADSS CABLE (OUTDOOR)

Fiber Optic Cable

Loose tube fiber optic cable allows for smaller diameter and higher strand counts to be used in outside plant environments. The cable consist of one or several gel filled tubes each containing 6-12 individual 250µm fiber strands inside. Fiber strands can be directly spliced, or connectorized with the use of a breakout kit.

Standard loose tube OSP fiber cable can be placed above or under ground inside a conduit, aerially lashed, or in some cases direct buried. Nylon jacketed loose tube cable offers additional chemical and rodent protection. ADSS (All Dielectric Self Supporting) cable has an inner dielectric strength member and is used in aerial applications without the need to be lashed to a steel messenger wire.

Typical ADSS Spans with 1.0% Installation Sag: NESC Heavy 275 ft (84 meters), NESC Medium 450 ft (137 meters), NESC Light 600 ft (183 meters). RLH ADSS hardware is used to attach the cable.

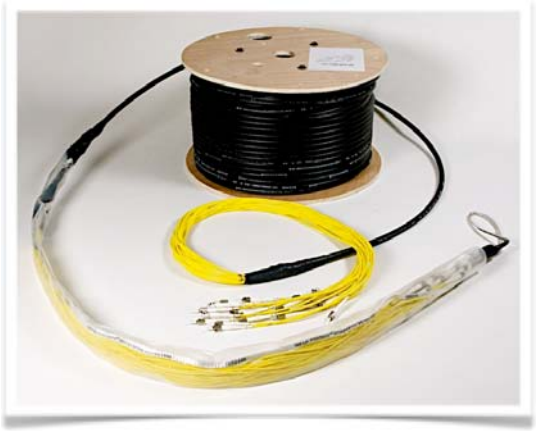


FIBER CABLE ASSEMBLIES

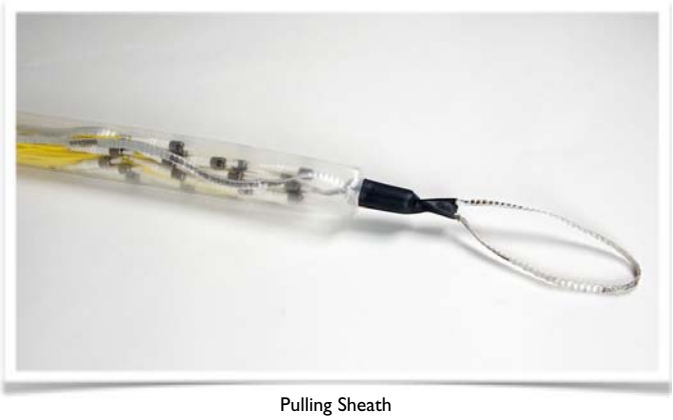
RLH Industries, Inc. manufactures fiber optic cable assemblies. Fiber optic cables assemblies can easily be installed with little or no fiber experience. Pre-terminated fiber provides a convenient and cost effective engineering solution. Fiber optic strand counts from 1-144 can be pre-terminated.

RLH cable assemblies include a pulling sheath installed on one or both ends of the cable. The pulling sheath protects the terminated ends during installation. The pulling sheath has a Kevlar pulling eye and is rated at 600 lbs. Recommended conduit size is 2-4 inches.

When measuring the length of the fiber path it is recommended to add 20-50 feet of slack for maintenance. Cable slack can usually be stored in a pull box or hand hole. RLH breakout kits are a standard 3 foot length (unless otherwise specified). Each individual fiber strand is numbered on the connector boot.



Cable Assembly with Single Pulling Sheath



Pulling Sheath

Standard Features
Pre-terminated fiber optic strand counts from 1 to 144
Kevlar pulling sheaths over terminated ends
Individually numbered strands
Multimode or Single-Mode
ST, SC, SMA, FC or LC connectors
ADSS, Loose Tube or Distribution Fiber Cable
Sized to any length

RLH – 24 C MM 3 ST ST 500 F – 1

Supplier

Strand Count
(1 - 288)

Cable Type
A = ADSS (all-dielectric self supporting)
B = Ribbon fiber OSP
C = Loose tube all-dielectric OSP (conduit)
I = Indoor/Outdoor loose tube
N = Nylon jacket (rodent protection)
P = Distribution tight buffer (plenum rated)
R = Distribution tight buffer (riser rated)
IR = Indoor/Outdoor tight buffer

Fiber Type
MM = Multimode (62.5/125)
M5 = Multimode (50/125)
SM = Singlemode (8-9/125)

Breakout Type
3 = 3.0mm
2 = 2.0mm
9 = 900 micron

Connector Style
ST, SC, SCA (SC APC), SMA, FC, LC, MTRJ, PT (breakout only)
XX (bare un-terminated)

Supplier

Unit of Measure
F=Feet
M=Meters

# of Pulling Sheaths

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FIBER OPTIC PATCH CORDS

Fiber optic patch cords or jumpers are ideal for short distance patching applications. RLH maintains a stock of standard jumpers and is capable of fast production for custom lengths and connector configurations. All RLH patch cords are tested and certified before shipment.

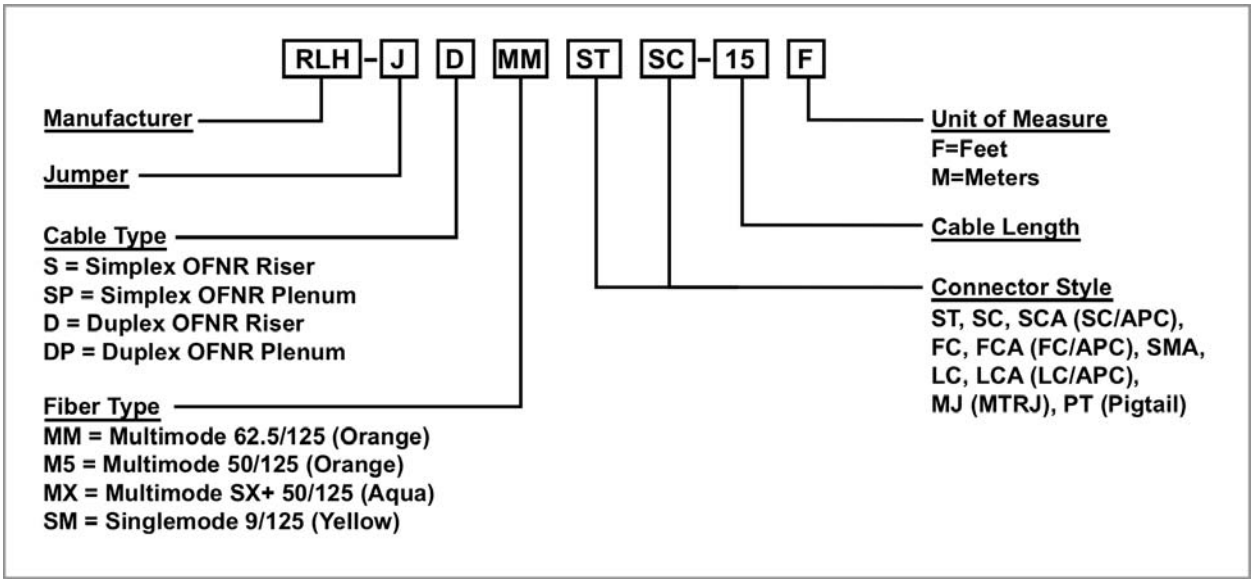
For splicing applications one fiber end can be provided without a connector as a pigtail. RLH carries Single-mode and Multimode standard fiber types.

Contact the RLH sales department for fiber types or connectors not listed.

Standard Features
Pre-terminated or pigtail
Fully tested and guaranteed
Mulitmode or Single-mode
ST, SC, SMA, FC or LC connectors
Sized to any length

LC Duplex to ST Fiber Optic Jumper

LC Simplex | LC Duplex | ST | SC | FC | FC-FC Jumper



WALL MOUNT FIBER PATCH PANELS

RLH wall mount patch panels provide a convenient way to connect a number of fiber optic cables and manage fiber networks, and can accommodate up to 72 ports. Unloaded panels require adapter plates available separately.

6 and 12 Port Wall Mount Fiber Patch Panels

The 6 and 12 port wall mount fiber patch panels is constructed of sturdy thermoplastic and holds a single 6 port adapter plate. For ST or SC adaptors pre-installed, specify desired fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Can also hold splice tray(s).

RLH-06WST-01 (6 Ports)

RLH-12WST-01 (12 Ports)

Part Number	Description	Capacity	Adapters	Dimensions
RLH-06W__-01	6 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC	H11.5" x W9.5" x D3.5"
RLH-06WXX-01	6 Port Patch Panel, Wall Mount, Unloaded	Holds 1 Adapter Plate	-	H11.5" x W9.5" x D3.5"
RLH-12W__-01	12 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC	H11.5" x W9.5" x D4.75"
RLH-12WXX-01	12 Port Patch Panel, Wall Mount, Unloaded	Holds 2 Adapter Plates	-	H11.5" x W9.5" x D4.75"

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-06W**ST**-01 (6 port patch panel preloaded with ST adapters)

12 and 24 Port Wall Mount Fiber Patch Panels

The 12 and 24 port wall mount fiber patch panels are constructed of powder coated steel and hold 2 of 4 adapter plates. The main door has a finger latch and one side of the inner panel is secured with a key lock (2 keys included). For ST or SC adaptors pre-installed, specify desired fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Can accommodate splice tray(s).

RLH-12WST-02 (12 Ports)

RLH-24WST-01 (24 Ports)

Part Number	Description	Capacity	Adapters	Dimensions
RLH-12W__-02	12 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC	H10.5" x W12" x D3.5"
RLH-12WXX-02	12 Port Patch Panel, Wall Mount, Unloaded	Holds 2 Adapter Plates	-	H10.5" x W12" x D3.5"
RLH-24W__-01	24 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC	H12" x W12" x D3.5"
RLH-24WXX-01	24 Port Patch Panel, Wall Mount, Unloaded	Holds 4 Adapter Plates	-	H12" x W12" x D3.5"

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-12W**ST**-02 (12 port patch panel preloaded with ST adapters)

* **Note:** Standard plate color is **ivory**. For **black**, add "**B**" to the end of the part number.

48, 54 and 72 Port Wall Mount Fiber Patch Panels

This wall mount fiber patch panel is constructed of powder coated steel and holds up to 9 adapter plates. Each of the two doors doors is secured with a key lock. We offer these unloaded (without adapter plates), or pre-loaded with adapters in popular 48, 54 and 72 port configurations. For ST or SC adaptors pre-installed, specify desired fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Dimensions are H17.5" x W17" x D5.5". Can accommodate splice tray(s).

RLH-54WST-01 (54 Ports)

Part Number	Description	Capacity	Adapters
RLH-48W__-01	48 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC
RLH-54W__-01	54 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC
RLH-54WXX-01	54 Port Patch Panel, Wall Mount, Unloaded	Holds 9 Adapter Plates	-
RLH-72W__-01	72 Port Patch Panel, Wall Mount, Preloaded	-	ST or SC

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-48W**ST**-01 (48 port patch panel preloaded with ST adapters)

* **Note:** Standard plate color is **ivory**. For **black**, add "**B**" to the end of the part number.

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RACK MOUNT FIBER PATCH PANELS

RLH Rack mount patch panels are made from durable powder coated steel, and include EIA 19' and 23" rack mount ears, attaching hardware, and fiber slack brackets as required. They provide a convenient way to manage fiber connections in an equipment or telco rack, and can accommodate up to 96 ports. RLH rack mount patch panels can also accommodate splice tray storage.

12 and 24 Port Rack Mount FIber Patch Panels (1RU and 2RU)

The 12 and 24 port rack mount fiber patch panels hold 2 or 4 adapter plates in a standard 1RU or 2RU rack space. The entire patch panel tray swings out for easy access, and secures with a screw knob. For ST or SC adaptors pre-installed, specify fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Can accommodate splice trays.

RLH-12RST-01 (12 Ports, 1RU)

RLH-24RST-01 (24 Ports, 2RU)

Part Number	Description	Capacity	Adapters	Dimensions
RLH-12R__-01	12 Port Rack Patch Panel, Preloaded	-	ST or SC	H1.75" x W17" x D11" (1RU)
RLH-12RXX-01	12 Port Rack Patch Panel, Unloaded	Holds 2 Adapter Plates	-	H1.75" x W17" x D11" (1RU)
RLH-24R__-01	24 Port Rack Patch Panel, Preloaded	-	ST or SC	H3.5" x W17" x D11" (2RU)
RLH-24RXX-01	24 Port Rack Patch Panel, Unloaded	Holds 4 Adapter Plates	-	H3.5" x W17" x D11" (2RU)

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-12R**ST**-01 (12 port rack mount patch panel preloaded with ST adapters)

36 and 48 Port Rack Mount FIber Patch Panels (3RU)

The 36 and 48 port rack mount fiber patch panels hold 6 adapter plates in a standard 3RU rack space housing. The entire patch panel tray slides out on guides for easy access, and the tinted front cover and hinged rear door have quarter turn latches. For ST or SC adaptors pre-installed, specify desired fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Can accommodate splice trays.

RLH-48RST-01 (48 Ports)

Part Number	Description	Capacity	Adapters	Dimensions
RLH-36R__-01	36 Port Rack Patch Panel, Preloaded	-	ST or SC	H4.75" x W17" x D13.5" (3RU)
RLH-36R XX-01	36 Port Rack Patch Panel, Unloaded	Holds 6 Adapter Plates	-	H4.75" x W17" x D13.5" (3RU)
RLH-48R__-01	48 Port Rack Patch Panel, Preloaded	-	ST or SC	H4.75" x W17" x D13.5" (3RU)

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-48R**ST**-01 (48 port rack mount patch panel preloaded with ST adapters)

72 and 96 Port Rack Mount FIber Patch Panels (4RU)

The 72 and 96 port rack mount fiber patch panels hold 12 adapter plates in a standard 4RU rack space housing. The entire patch panel tray slides out on guides for easy access, and the tinted front cover and hinged rear door have quarter turn latches. For ST or SC adaptors pre-installed, specify desired fiber connection type in part number when ordering. Adapter plates with various additional connector types are available separately. Can accommodate splice trays.

RLH-72WST-01 (72 Ports)

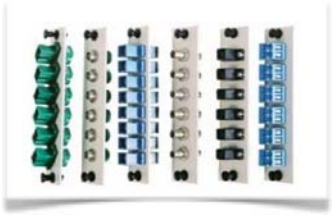
Part Number	Description	Capacity	Adapters	Dimensions
RLH-72R__-01	72 Port Rack Patch Panel, Preloaded	-	ST or SC	H7" x W17" x D13.5" (4RU)
RLH-72RXX-01	72 Port Rack Patch Panel, Unloaded	Holds 12 Adapter Plates	-	H7" x W17" x D13.5" (4RU)
RLH-96R__-01	96 Port Rack Patch Panel, Preloaded	-	ST or SC	H7" x W17" x D13.5" (4RU)

* **Note:** Specify **ST** or **SC** in preloaded Patch Panel part number. Example: RLH-72R**ST**-01 (72 port rack mount patch panel preloaded with ST adapters)

FIBER ADAPTER PLATES

RLH fiber patch panel adapter plates may be ordered separately to accommodate your particular patching requirements. They are designed to install into RLH wall and rack mount fiber patch panels, allowing you to mix and match adapter types with ease.

Plates are available in ivory or black, and come complete with attaching clips and adapters pre-installed.



Plates showing different connector options

Part Number	Description	Fibers
RLH-06ST	6-Position ST Adapter Plate	6
RLH-08ST	8-Position ST Adapter Plate	8
RLH-12ST	12-Position ST Adapter Plate	12
RLH-06SC	6-Position SC Adapter Plate	6
RLH-08SC	8-Position SC Adapter Plate	8
RLH-06DSC	6-Position SC Duplex Adapter Plate	12
RLH-06SCA	6-Position SC/APC Adapter Plate	6
RLH-06FC	6-Position FC Adapter Plate	6
RLH-06DLCMM	6-Position LC Duplex MM Beige Adapter Plate	12
RLH-06QLCMM	6-Position LC Quad MM Beige Adapter Plate	24
RLH-06DLCSM	6-Position LC Duplex SM Blue Adapter Plate	12
RLH-06QLCSM	6-Position LC Quad SM Blue Adapter Plate	24
RLH-06SMTRJ	6-Position MTRJ Adapter Plate	12
RLH-BLANK	Blank Plate	NA

* **Note:** Standard plate color is **ivory**. For **black**, add "**B**" to the end of the part number.

1RU HIGH DENSITY RACK MOUNT FIBER PATCH ENCLOSURE

The Hi-Density 1RU Rack Mount Patch Panels are used to house fiber terminations and accommodate patching of Fiber Optic Links.

The Slim, 1RU enclosure can be installed into EIA 19" or 23" equipment racks, and is designed to occupy the minimum amount of rack space while offering a generous capacity up to 96 fibers.

It is constructed of durable black powder coated steel with removable front connector panel and cover for easy access to fiber optic cables. Self sealing rubber grommets accommodate multiple cable entrances for ease of installation, and cable management hardware is included.

1RU Rack Mount Enclosure

Part Number	Description	Fibers	Adapter Style
RLH-24HDRST-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	24	ST
RLH-24HDRSC-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	24	SC
RLH-24HDRSCA-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	24	SC/APC
RLH-24HDRFC-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	24	FC
RLH-24HDRDSC-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	SC Duplex
RLH-24HDRDLCMM-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	LC MM Duplex
RLH-24HDRDLCSM-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	LC SM Duplex
RLH-24HDRMTRJ-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	MTRJ
RLH-48HDRST-01	48 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	ST
RLH-48HDRFC-01	48 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	48	FC
RLH-24HDRQLCMM-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	96	LC MM Quad
RLH-24HDRQLCSM-01	24 Port Hi-Density 1RU Rack Mount Fiber Patch Panel	96	LC SM Quad

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FIBER ADAPTERS / ATTENUATORS

Fiber Adapters can be ordered individually or installed on a RLH Fiber Optic Patch Panel. Hybrid adapters allow patching together fiber cable with different connector styles.

Female to female adapters

Male to female adapters

Female to female adapters

Part Number - Simplex	Part Number - Duplex	Description
RLH-FSAST	RLH-FDAST	ST-ST Adapter
RLH-FSASC	RLH-FDASC	SC-SC Adapter
RLH-FSASTSC	RLH-FDASTSC	ST-SC Adapter

Male to female adapters

Part Number	Description
RLH-MFMMSC-ST	SC/male - ST/female Multimode Adapter
RLH-MFSMST-SC	ST/male - SC/female Single-mode Adapter
RLH-MFSMSC-ST	SC/male - ST/female Single-mode Adapter

Attenuators

Part Number	Description
RLH-MFSMSC-_ _	SC Single-mode Attenuator
RLH-MFSMST-_ _	ST Single-mode Attenuator

* **Note:** Specify **5dB**, **10dB** or **15db** attenuation in part number. Example: RLH-MFSMST-**05** (ST 5dB attenuator). Other attenuation values available

1x2 FIBER COUPLERS/SPLITTERS

RLH fiber optic couplers combine light from two fibers into one fiber, or vice-versa. Fiber Couplers offer a convenient solution when fiber strand capacity is a concern. Recommended for use with most Fiber Optic Link systems. Our coupler/splitters are fully tested to ensure fiber signal quality and minimize troubleshooting at the installation site.

1x2 Multimode Coupler

Part Number	Description
RLH-2X1DPMMST	1x2 Multimode Coupler with ST Connections
RLH-2X1DPMMSC	1x2 Multimode Coupler with SC Connections
RLH-2X1DPSMST	1x2 Single-mode Coupler with ST Connections
RLH-2X1DPSMSC	1x2 Single-mode Coupler with SC Connections

SFP TRANSCEIVERS

The RLH Small Form Pluggable (SFP) transceivers are interchangeable compact media connectors that allow a single network device to connect to a variety of fiber and copper cable types and distances. The RLH SFP can be used in conjunction with RLH Fiber Optic Link Gigabit Ethernet Cards or any Gigabit Ethernet, 1G Fibre Channel, SONET OC-12 or SDH STM- 4 compatible SFP device.

SFP Transceiver

Part Number	Description	Connector
8801-1556-01	1.25 Gbps Multimode SFP Transceiver 850nm (220/550m)	LC/Duplex
8801-1557-01	1.25 Gbps Multimode SFP Transceiver 1300nm (2km)	LC/Duplex
8801-1558-01	1.25 Gbps Single-mode SFP Transceiver 1310nm (12km)	LC/Duplex
8801-1558-01LH	1.25 Gbps Single-mode SFP Transceiver Lang Haul 1310nm (34km)	LC/Duplex

FIBER SPLICE CASE

Fiber Management

The RLH Aerial Splice Case is available in 2 models housing up to 24 fiber strands. Each model includes ADSS attaching fiber cable hardware to install the splice case directly onto an ADSS fiber optic cable.

All necessary fiber cable sealing plugs, zip ties, and weather proof epoxy are included for a complete and professional aerial splice case installation.

Includes necessary fusion splice trays, aerial hanging/ mounting brackets, and complete installation instructions.

Splice case kit

housing detail

Part Number	Description
RLH-FOSCA-12F-01	12 Strand Aerial Splice Case
RLH-FOSCA-24F-01	24 Strand Aerial Splice Case
RLH-FST-12	12 position splice tray L7in. x W4.75in. x D0.5in.
RLH-FST-24	24 position splice tray L12.25in. x W4in. x D0.5in.

FIBER DISTRIBUTION CABINET

Fiber Management

The RLH Fiber Distribution Cabinet is a wall mount cabinet specifically designed to hold fiber splice trays for fiber optic cable installation applications. It contains a splice tray shelf with hook and loop retainer strap that holds up to 8 trays, convenient cable management support brackets, dual tie down brackets, and self sealing grommets at the top and bottom corners.

The cover removes completely and is held in place with quarter turn latches. The cabinet is made from steel and powder coated light grey for durability.

All necessary attaching hardware is included for complete and professional fiber optic cable installation.

Fusion splice trays available separately.

Fiber Distribution Cabinet

Interior Configuration

Part Number	Description	Dimensions
RLH-FDC08-01	Fiber Distribution Cabinet with 8 Position Splice Tray Holder	H16" x W18" x D5.5"
RLH-FST-12	12 position splice tray	L7in. x W4.75in. x D0.5in.
RLH-FST-24	24 position splice tray	L12.25in. x W4in. x D0.5in.

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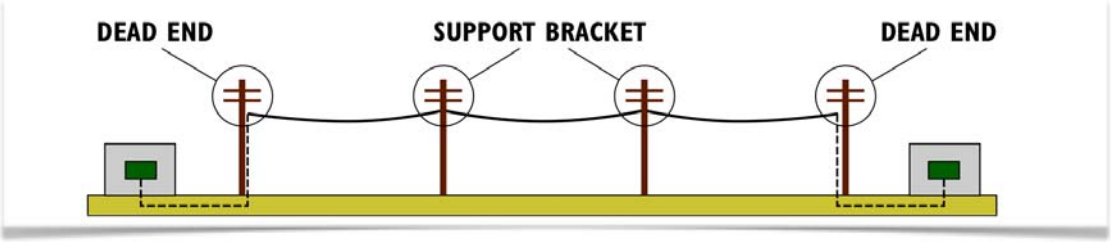
ADSS HARDWARE

For aerial fiber optic applications in electrically hazardous environments it is recommended to use ADSS (All-Dielectric Self Supporting) cable. ADSS fiber cable contains an aramid strength member eliminating the need to lash to a messenger. There are two types of hardware to attach ADSS fiber optic cable to a pole; dead ends and support bracket.



ADSS hardware application diagram

ADSS Support Bracket

ADSS Dead End Support

Mid-Span Storage Bracket

Part Number	Description
8806-1377-01	ADSS Support Bracket
8806-1375-01	ADSS Dead End Support
8806-1376-01	ADSS Mid-Span Storage Bracket

FIBER MARKER ACCESSOIRIES

Marker Ball

Marker Tape

Marker Post

Essential fiber cable marker accessories for buried cable. Since fiber optic cable isn't normally detectable by buried cable detectors, it's important to identify buried fiber to avoid accidental damage.

Part Number	Description
RLH-MBM-01	Marker Ball
RLH-MTP-ND	Marker Tape (Non-Detectable) 3" x 1000' Roll
RLH-FMP-06	Marker Post - 6' (* Note: Custom printing available.)

INNERDUCT

Accessories

Innerducts are used for added protection when multiple fiber optic cables are installed into the same conduit. RLH carries innerduct types for outside plant and indoor applications. HDPE offers high tensile strength while being impervious to abrasion, scouring and root penetration. Riser rated material meets building fire code safety standards. RLH Innerduct can be ordered with fiber cable installed for faster installations.

Part Number	Description	Color
RLH-IDCTPE-10	1.0" I.D. Innerduct HDPE/outdoor corrugated with pull rope	High Visibility Orange
RLH-IDCTPE-13	1.25" I.D. Innerduct HDPE/outdoor corrugated with pull rope	High Visibility Orange
RLH-IDCTRR-10	1.0" I.D. Innerduct Riser/indoor corrugated with pull rope	High Visibility Orange

GRADE LEVEL PULL BOXES

Accessories

ILH grade level pull boxes are appropriate size for storing and accessing fiber optic cable slack underground. Different sizes and ratings are available for greenbelt and sidewalk applications.

Part Number	Description	Color
RLH-PB173018-G	17" x 30" x 18" Pull Box HDPE Body	HDPE Hex Bolt Lid (Green)
RLH-PB173024-G	17" x 30" x 24" Pull Box HDPE Body	HDPE Hex Bolt Lid (Green)
RLH-PB173024-PC	17" x 30" x 24" Pull Box HDPE Body	Polymer Concrete Lid
RLH-PB243624-G	24" x 36" x 24" Pull Box HDPE Body	HDPE Hex Bolt Lid (Green)
RLH-PB243624-PC	24" x 36" x 24" Pull Box HDPE Body	Polymer Concrete Lid

D-PAD FIBERGLASS PLATFORM

Accessories

IThe RLH D-Pad platform is placed in front of or near high voltage apparatus to provide personal protection for workers.

Available in 2 sizes, it is made from outdoor rated fiberglass material, 4'' thick, and has a slip resistant surface to enhance traction. It is recommended to use with an isolation mat.

30 x 20 D-pad

30 x 48 D-pad

Part Number	Description
RLH-DPAD-3020	D-Pad Fiberglass Platform - W30" x L20" x D4"
RLH-DPAD-3048	D-Pad Fiberglass Platform - W30" x L48" x D4"
RLH-DPAD-3060	D-Pad Fiberglass Platform - W30" x L60" x D4"

DUAL ACCESS LOCK ASSEMBLY

Accessories

The Dual-Access Lock Assembly provides a means of using two padlocks on a secured cabinet. Either pad lock can be removed enabling access.

Locks assemblies are manufactured from heavy 10 gauge steel. Padlock holes are .38-inch (10mm) in diameter. Compatible with all RLH enclosures. Padlock is not included.

Part Number	Description
RLH-PLDA-01	Dual Access Padlock Assembly

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ISOLATION MAT

Accessories

The RLH Isolation Mat is placed in front of or near high voltage apparatus to provide personal protection for workers. The isolation mat can also be wrapped around poles when setting new poles to guard against accidental line contact. Maximum use voltage is 17,000V. Made from high quality Type II Rubber, 1/4" thick and tested to 20kV to comply with ASTM D 178, Class 2 specifications. Matting has corrugated surface to enhance traction and reduce possibility of particles becoming embedded.

The Standard Isolation Mat is available in a 36" x 36" mat size, but can be custom cut to specific lengths per customer request. There are no minimum orders for this service.

Part Number	Description
RLH-ISO-MAT	Black Isolation Mat, W36" x L36" x 1/4" Thick, ASTM D 178 20kV

STANDARD MINI FAN KITS

Accessories

RLH Mini Fans are designed to be a direct replacement for the weatherproof enclosure vents provided on all RLH enclosures, and can be installed without any drilling or other modifications. Factory installation is standard when ordered with RLH enclosures and telco units.

Features	
OPERATING VOLTAGE:	10 - 27 VDC
MAXIMUM CURRENT:	100mA
PHYSICAL DIMENSIONS:	**Fan Assembly:** H2.5"xW1.875"xD1.75" **Thermostat:** H2.75"xW1.5"xD1.5"

Single fan kit

Dual fan kit

Part Number	Description	Recommended For:
RLH-FSAST	Mini Fan Kit with Single Fan and Thermostat	Enclosures up to H18"xW16"xD15"
RLH-FSASC	Mini Fan Kit with Dual Fans and Thermostat	Enclosures from H20"xW16"xD8" up to H40"xW32"xD18"

COMBINATION HEATER/FAN KITS

Accessories

RLH Combination Kits are designed to provide heating and venting on all RLH enclosures. Kits come complete with heaters, vent fans, thermostats and all mounting hardware. Convection Heater units come with a dual heat/cool thermostat 100W heater kit uses a separate thermostat for the fan.

RLH Combination Kits may be factory installed when ordered with RLH enclosures. Installation instructions are included for retrofit applications. Includes heater and vent fan(s), hardware and accessories. **Refer to the RLH web site for additional information.**

Dual thermostat

100W kit

FIBER OPTIC TEST AND MAINTENANCE KIT

Accessories

Anyone installing or maintaining fiber optic equipment must have the necessary tools to properly test and maintain the equipment. RLH Industries, Inc. provides easy to use fiber optic test and maintenance kits to cover both single mode and multimode fiber cable installations.

Part Number	Description
RLH-FI-0053TS	Universal Fiber Optic Test and Maintenance Kit
RLH-FI-0053CKM	Fiber Optic Cleaning Kit
RLH-FI-813LR	Power and Source Meter Test Set
RLH-FI-9061-0000	Fiber Optic Talk Set - Multimode (Includes carry case, headset and mic)
RLH-FI-9062-0000	Fiber Optic Talk Set - Single Mode (Includes carry case, headset and mic)

RLH SERVICES

RLH Industries has been providing expert field services and factory turnkey assemblies for all Fiber Optic Link products since 1988.

Whether it's an aerial installation, buried, telco connection or institutional data build-out, our Project Engineering department is available nationwide for assistance with your next Fiber Optic Link application.

FIELD SERVICES

- Field termination and testing of fiber optic cable
- Installation, repair and test of fiber optic cables
- Site evaluation and design of Fiber Optic Link Systems
- HDSL/T1 circuit turn-up, cutover and certification
- Engineering with over 20 years experience
- GPR Calculation Services
- On-site support and training
- 24/7 Technical Support

INSTALLATION OF CUSTOM PRE-ASSEMBLED UNITS

RLH Industries offers factory pre-assembled Fiber Optic Link Units or Telco Interface Units. These Telco Interface Units can be ordered in custom or standard configurations.

RLH Telco Interface Units offer turnkey ordering and installation convenience. We can install these at your site and be up and running quickly. RLH can provide all optional equipment such as copper cable termination units, fiber distribution units, and power supplies as well. No need to worry or make return site visits to install equipment not originally planned for.

TRAINING

RLH Industries conducts education and training classes to help our customers understand the concepts behind ground potential rise, absolute high voltage isolation, and the conversion of analog and digital signals from copper to fiber optic, and back to copper again.

Our classes teach a variety of subjects related to installing and operating RLH fiber optic equipment. Check back to see when classes are being offered, or contact us to be notified of classes as soon as they are scheduled.

IN-HOUSE Seminars are suitcased to any **CUSTOMER PROVIDED** training facility.

OPEN Seminars are suitcased to various locations provided by Protection Technologies Inc.

Training Contact Information

Contact: Bill Petersen, President

Ph: (970) 858-8622
email: billpetersen@electricalprotection.com

PROTECTION TECHNOLOGIES INC.
138119 Road
Fruita, Colorado 81521
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Fax: (970) 858-8623
www.electricalprotection.com

WARRANTY AND REPAIR

RLH Industries, Inc. has been a leader in fiber optic telecommunications since 1988. RLH is recognized throughout the U.S. and offers the only **UNCONDITIONAL LIFE TIME WARRANTY** in the telecommunications industry.

We are very proud of our warranty which simply states that our **Fiber Optic Link Assemblies are warranted to be free of defects in material and workmanship for the LIFE OF THE PRODUCT**.

CONTACT INFORMATION

Ordering and Technical Information

By Mail: Send P. O. To:	Attn: Sales RLH Industries, Inc. 936 N. Main St. Orange, CA 92867	
By Phone: Sales/Customer Service/ Tech. Support Mon.-Fri. 6am - 6pm PST	Local Toll Free Toll Free	(714) 532-1672 (800) 877-1672 (866) DO-FIBER
By email:	info@fiberopticlink.com	
By Fax:	(714) 532-1885	
Technical Support Numbers 24 hours/day, 7 days/week	(714) 366-2503 (714) 457-5740	

Authorized Fiber Optic Link Representatives

USA - UPPER MID WEST

Contact: Tom Corey
Regional Sales Manager

15389 Destination Drive
Noblesville, IN 4606
Ph: (317) 219-5730
Fax: (317) 219-5738
Mobil: (317) 376-3749
E-mail: tcorey@fiberopticlink.com

USA - SOUTH EAST, LOWER MID WEST

Contact: Joe Boyles
Regional Manager

1592 Anderson Road
Hendersonville, TN 37075
Ph: (615) 826-1576
Fax: (615) 822-0168
Mobil: (615) 957-3474
E-mail: joeboyles@fiberopticlink.com

USA - MID-ATLANTIC, EASTERN PA, DE, NJ, MD

Mid-Atlantic Power Equipment Sales
21 Aspen Lane
Gilbertsville, PA 19525

Contact: Jim Miller
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Fax: (270) 596-1294
E-mail: jimm@midatlanticpowersales.com

USA - WEST

Contact: Bart Goldstein
Regional Sales Manager

5543 Olinda Road
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Ph: (510) 222-9005
Cell: (510) 693-3670
email: - bgoldstein@fiberopticlink.com

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Ph: (450) 465-9659
Cell: (514) 726-7032
email rledoux@fiberopticlink.com

USA - NORTHWEST, ALASKA, HAWAII

Alster Communications, LLC
Contact: Steve Stouffer

PO Box 12428
Mill Creek, WA 98082
Ph: (800) 365-1272
email steve@alster.com

Authorized Fiber Optic Link Distributors

CENTRAL USA REGION

Border States Electric Supply
Contact: Leighton Peterson

206 S. Plainview Street
Billings, MT 59100
Ph: (800) 736-6266 toll free
Ph: (701) 239-7408
Fax: (406) 256-9891
E-mail: lpetersen@border-states.com

USA AND EU

Comnet Incorporated
Contact: Bharat Param

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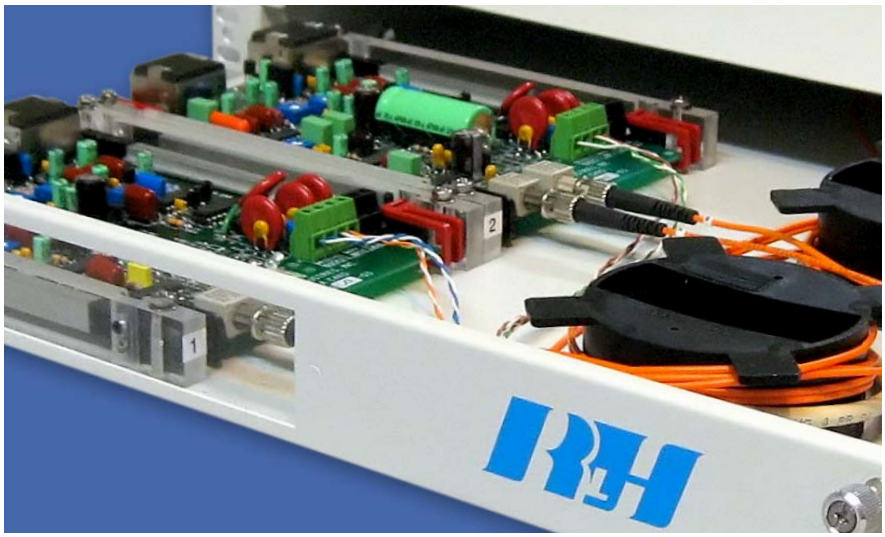

At RLH we design, engineer, and manufacture the world-class RLH fiber optic links and fiber optic products, equipment, cable and supplies for the telecommunications industry.

the leader in fiber optic telecom isolation technology

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RLH FIBER OPTIC LINK
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